THE MICRO USER

BRITAIN'S BEST SELLING ACORN MAGAZINE

Volume 9 Number 10 December 1991 £1.95

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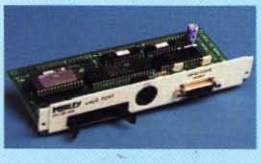

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TOP BANANA COMPETITION

Help save the Earth......and win yourself games, T-shirts and videos from Hex in the greenest computer competition ever. Check it out on Page 95.

SPECIALS

24 **Diary**
The conclusion to our everyday story of programming folk.

76 **Santa's Slip-up**
Have loads of type-in fun with this seasonal arcade fun. *

87 **Music Staves**
Manuscript paper can be very expensive, so why not print your own – in lots of different styles. *

157 **Indexer**
Keep track of your files with this handy indexing utility based around Wordwise Plus. *

FREEBIES

Would you like some commercial software for any of the Acorn machines for free? Find out how you can get it on Page 19.

Type-it-in

This symbol indicates that the feature contains * at least one full length listing for you to key in on your micro.

Get it right ✓

All the major listings in this magazine are accompanied by checksums to help you key them in correctly.

For full details of how to use them see the article on page 56 of the February 1991 issue.

EDUCATION

27 **Update**
Up-to-the-minute news of the Acorn range of micros in use in the world of education.

29 **Reviews**
Catch up on the latest software for the BBC Micro series in schools, including:

- Fun & Games
- NC Planner & NC Base
- PrimeArt
- Picture Book

REGULARS: News 11 ● Mad Hatter 22 ● PD

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116 **DTP**
Learn the fundamentals of page layout and design.

118 **Databases**
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120 **Spreadsheets**
Explore cells and functions to manipulate numbers.

140 **Object drawing**
Find out how to create pictures that can easily be altered.

LET'S COMPUTE!

Three simple sections that teach you the basics of computer programming

67 **Rom & Ram** ✱
Learn all about programming in BBC Basic.

71 **Logo Lowdown** ✱
Discover how to make the turtles do what you want.

74 **Safe Scientist** ✱
The Mad Professor is making waves and noises

Exclusive to *The Micro User*, courtesy of Krisalis, play the Chuck Rock demo on this month's disc.

NEWCOMERS

43 **Chroma 135**
A screenful of video and TV outputs are available from this single hardware unit.

59 **FaxScan**
Get into business with a four-in-one scanner, printer, answerphone and fax machine.

63 **DTP Books**
We investigate three books that cover different areas of the fascinating world of DTP.

91 **Arctist**
Check out this low-priced art package, can it really meet the challenge of the big packages?

137 **Andi Odule**
Expand your 32 bit micro through the powerful I^2C interface using with this handy extension.

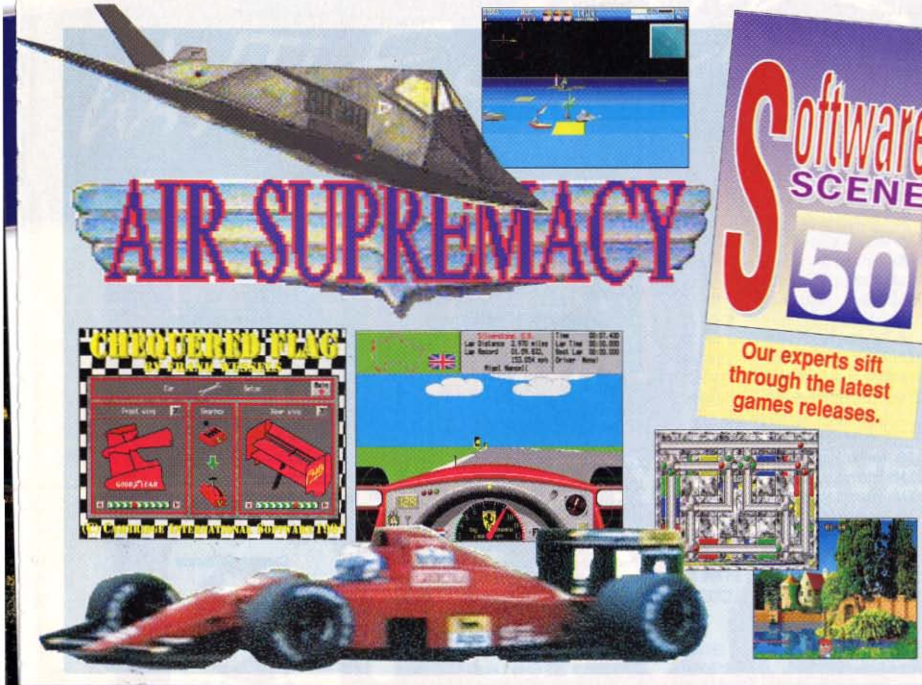
137 **Investigator**
Taking a long, hard and detailed look at your discs needn't be a chore with this utility.

145 **HardCard**
Just plug in and go using this expansion card with a hard disc built on to it.

149 **Design Concepts Utilities**
A whole set of low-priced utilities to help you use your machine more efficiently.

161 **Contex Spreadsheet**
Why drive a Roller when a Mini will do? We take a look at this low-priced spreadsheet.

163 **Double Podule**
Build up your BBC A3000 to take as many expansion cards as the bigger machines.



Software SCENE

50

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Find out how to subscribe on Page 164

NEXT MONTH IN THE MICRO USER

We look at graphics on the 32 bit Acorn machines and there's lots of handy utilities for all Acorn machines plus our PD section full of great money-saving ideas.

Page 37 ● Problem Solved 45 ● Body Building 63 ● Letters 147

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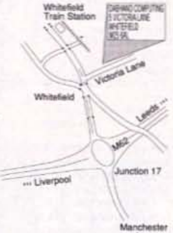

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Transport, drawfiles	*Micro Studio*	£25
Trivial Pursuit	*Domark*	£22
Turbo Type	*CIS*	£20
Tween	*Ace*	£22
Twin	*Acorn*	£24
Twin World	*UBI Soft*	£14
TWO (Task and Window Organiser)	*ICS*	£19
– site licence		£60
Typing Tutor	*CIS*	£17
U.I.M	*Fourth Dim*	£23
Utility Disc 1	*Data Store*	£13
Utility Disc 2	*Data Store*	£13
Utility Disc 3	*Data Store*	£7
Utility Collection	*Data Store*	£21
View»Mac 3	*Human*	£65
– Arc/Mac Cable	*Human*	£24
Vox Box	*Clares*	£50
White Magic	*Fourth Dim*	£15
White Magic 2 + Designer	*Fourth Dim*	£15
Wimp Game	*Fourth Dim*	£14
Wonderland	*Virgin*	£24
Words and Pictures	*Chalksoft*	£17
World Geography Maps, draw	*Micro Studio*	£23
WorldScape	*Eclipse*	£15
World Wildlife, sprites	*Micro Studio*	£16
Worra Battle	*Oak*	£13
WorraCAD	*Oak*	£75
Worra Plot	*Oak*	£24
Z88: A Dabhand Guide	*Dabs*	V0 £15
Z88 PipeDream Guide	*Dabs*	V0 £15
Zarch	*Superior*	£16
Zelanites	*Micro Power*	£17

HARDWARE

A5000 COMPUTERS

2Mb Hard Disc Colour System	*Acorn*	£1499
– as above + Learning Curve		£1530

PRINTERS

ArcLaser	*Calligraph*	£895
ArcServer	*Calligraph*	£985
Bubble Jet BJ-10e	*Canon*	£205
Bubble Jet BJ-300	*Canon*	£360
Bubble Jet BJ-330	*Canon*	£405
Laser Direct HiRes4	*CC*	£899
– with optional paper cassette		£999
Laser Direct HiRes8	*CC*	£1280
Laser Direct Qume	*CC*	£856
Laser Direct LBP-4 Card	*CC*	£323
Refill toner cartridge for Canon EPS		£50
LBP-4	*Canon*	£660

FUNCTION KEY STRIP ORGANISER

Arckey	*ICS*	V0 £3
– quantity of 4		V0 £10

MEMORY, ARM3 ETC

Fitting extra unless stated
† Fitting is straightforward
‡ Fitting requires expertise

A3000 2 Mb Non-upgradable †	*IFEL*	£55
A3000 2 Mb Upgradable †	*IFEL*	£63
A3000 4 Mb †	*IFEL*	£149
A310 2 Mb Upgradable soldered ‡	*IFEL*	£99
– as above + MEMC1a		£149
– as above + MEMC1a + fitting		£200
A310 4 Mb soldered + MEMC1a ‡	*IFEL*	£225
– as above + fitting		£277
– as above + fitting + OS3 carriers		£298
ARM3 ‡		£400
4-slot 4-layer Backplane	*IFEL*	£59
A310 RISC OS Carrier Board ‡	*IFEL*	£25
A300/400 Fan kit	*ICS*	£12
Fan filters (set of 10)	*ICS*	£4
Whisper Fan Quietener	*ICS*	£15

MICE, MONITORS

Clares Micro Mouse	*Clares*	£26
9060S	*Eizo*	£450
9070S	*Eizo*	£640

SCANNERS, DIGITISERS

ArcScanner including Epson GT-4000	*Clares*	£1660
FaxScan	*Spacetech*	£94
FX9600AT + Maintenance	*Amstrad*	£376
Hawk V9	*Wild Vision*	£330
– A3000 version	*Wild Vision*	£390
Image (colour)	*Irlam*	£589
Image Scanner	*Iota*	£389
i-Scan 200	*Irlam*	£539
i-Scan 400	*Irlam*	£589
Scan-Light A4	*CC*	£346
– with Sheet Feeder	*CC*	£431
Scan-Light Junior	*CC*	£174
– A3000 internal	*CC*	£174
Scan-Light Junior 256	*CC*	£205
– A3000 internal	*CC*	£205
Scan-Light Professional	*CC*	£840
– as above + SCSI interface		£940

ODDULES

AnDi	*Baildon*	£49
I²C SWI	*Baildon*	£15
– bought with Oddules		£5
Oddule Adaptor	*Baildon*	£10
(needed unless you have an I²C socket)		

KEYBOARD COVERS

Seal 'n Type (spill-proof)		
– Archimedes	*Kador*	£14
– A3000	*Kador*	£14

HIGH DENSITY 3½" FLOPPY DISCS

Pack of 10	£10

HOW TO ORDER

VAT: UK customers please add 17.5% to the total price, except for the zero-rated items marked V0. Our VAT number is 384 3312 56.

***CARRIAGE IS FREE WITHIN MAINLAND UK IF YOU PAY ON ORDERING.** Remember this when you compare prices!*

Overseas carriage: Add £6 (Europe) or at least £12 (elsewhere) for each software item if paying by pounds sterling bank draft payable in England, or Eurocheques not exceeding £100 each. If you are paying by credit card we will add airmail and insurance at cost. (Add £10 + 1% of the total price if you can only pay in your own currency).

Credit cards are welcome. We do not charge your account until your order has been fulfilled. The name and address for delivery of goods must be as known to the credit card company. If you are leaving an order on our answering machine include your telephone number, the expiry date of your card, and your calculation of the total payment due.

Official orders are welcome. Payment is due in 14 days. Invoices are subject to carriage and late payment charges.

Site licences: please enquire if no price is shown.

All products, prices and specifications are offered in good faith and are subject to change without notice. Your order will receive our attention immediately, but suppliers sometimes keep us waiting.

Goods are guaranteed but we do not supply them on approval.

Thinking IDE?

At the 1991 BBC Acorn User Show it seemed almost every other exhibitor had an IDE upgrade to offer. Meanwhile we were welcoming back customers who took our *ideA*s home from the 1990 show.

If you're planning to buy IDE, here are a few questions you might like to throw at your supplier.

Do you have A3000 internal hard disc upgrades in stock?

Can I fit your interface to my A310 without a backplane?

Can I add a second hard disc to your system without having to buy another case and power supply?

Will you give me an update to a second generation of software very soon, at a nominal cost?

If I buy from you, will my hard disc come with a

FREE Compression WORTH £57? *

(Compression is the new Computer Concepts utility which can double hard and floppy disc capacity)

If the answers are yes, you must be talking to us already.

Think ICS

There's only one Original

ideA

**While stocks last*

AUTHORISED ACORN DEALER

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Dept TMU16, 10 Frost drive, WIRRAL, Merseyside, L61 4XL

Tel: 051-632 1234 Fax: 051-632 3434

E&OE SO39 91OC25

The Com te Upgrade Solution

ARM3 for A3000
£334 + VAT inc installation

Qualified
Dealer

A3000

- Uses only eight RAM devices
- User upgradeable from 1 to 4 Mb
- Four layer printed circuit board
- Low power consumption
- Available without RAM devices

Bare card - £35 2nd Mb Card - £56 4th Mb Card - £159

A3

- Includes MEMC1a upgrade
- Large capacity OS ROM sockets
- No soldering required
- Four layer printed circuit boards
- Courier collection of your machine

2nd Mb - £225 4th Mb - £299

A400

- 400 series RAM upgrade kits
- Supplied with full fitting instructions
- 410/1 to 420/1 requires 1Mb
- 420/1 to 440/1 requires 2Mb
- 410/1 to 440/1 requires 3Mb

1Mb - £35 2Mb - £64 3Mb - £98

8Mb

- Uses only eight RAM devices
- Suitable for A440, A400/1 & R140
- Fully RISC OS compatible
- Four layer printed circuit boards
- Courier collection of your machine

8 Mb upgrade - £599

ARM3

- New series Aleph One ARM3
- 3 to 4 times performance increase
- Surface mount technology
- Four layer printed circuit board
- Suitable for all Acorn ARM2 based machines

ARM 3 upgrade - £285 ARM 3 for A3000's - £334

VIDC

- Increases resolution with all Multiscan monitors
- Doubles desktop work area
- Custom modes for Taxan and Eizo monitors
- Suitable for all Archimedes computers
- Free with any multiscan monitor from Atomwide

Atomwide VIDC Enhancer - £25

DISC

- Syquest removable disk systems
- Including One cartridge, drive unit and all cables
- 42Mb removable cartridges
- High-flow fan fitted for improved cooling
- Please phone for prices on other SCSI related products

Atomwide Syquest drive unit - £424 42Mb disks - £55

Access

VISA

- All products are cross-compatible
- Combination deals available on all products
- Typical combination A310 4 Mb and ARM3 £559
- Dealer enquires welcome
- Phone for full details on all products

All prices exclude VAT at 17.5% but include delivery

ATOMWIDE

23 The Greenway Orpington Kent BR5 2AY Tel 0689 838852 Fax 0689 896088

NEWS BEAT

Interfacing Matchmaker

DESIGNED by Birmingham-based SRS Systems (021-643 2877) Matchmaker is an intelligent interface allowing a connection from any switching device, including single switches, mice, tracker balls and programmable keyboards.

As it plugs directly into the keyboard input port the Archimedes' the I/O podules are left free. The design allows operation with any type of switch input, so there should be no software mismatch problems.

Ideal for severely handicapped users it also has industrial applications in environments where normal keyboard input isn't suitable or when only a few keys are needed.

Director John Shermer said of Matchmaker: "At last a piece of hardware is available which provides state of the art technology for disabled people.

"It provides endless opportunities for running standard software packages without having them having to be adapted for specific disabilities".

An Apple for the Archimedes

MANY users find Minerva's PC Access indispensable and Arxe Systems (081-534 1198) intend their MacFiler to be just as popular. Due for release in the New Year the price will be around £50.

It allows the Archimedes to read/write to the high density 1.4Mb Macintosh floppy. A number of utilities will also be supplied to allow Macintosh files to be converted for use on the Archimedes and for Archimedes files to be used on the Macintosh. This will be especially useful for anyone involved in DTP but unfortunately the variable speed, low density GCR disc format won't be supported.

Curving on for Christmas

HOT on the trail of the new Acorn machine comes the A5000 Learning Curve Pack – just in time for Christmas – consisting of the ARM3, Risc OS 3 powered A5000 and a range of software packages.

For those with a more limited budget there's the new A3000 Learning Curve Pack.

Both packs feature 1st Word Plus, Genesis Plus, Lemmings and Pacmania, in addition to the two packed Applications Discs which come as standard.

A5000 Learning Curvers will also find a copy of Acorn's DTP program – A3000 buyers can have this as an optional extra – and a new PC Emulator using DRdos 5, a great improvement on MSdos 3 featured on the recently released stand-alone PC Emulator. Again this is an optional extra for A3000 buyers.

To enhance both Learning Curves there is an additional component, the JP150 300 dpi inkjet printer.

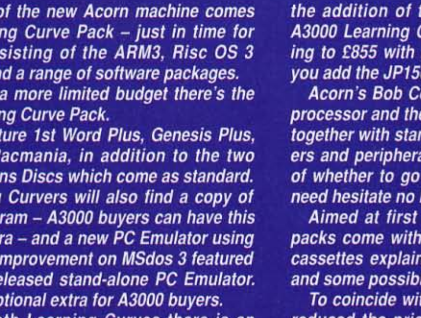
The pricing goes as follows: A5000 Learning Curve with a multi-scan monitor costs £1,531 with the addition of the printer this becomes £1,766. A3000 Learning Curve prices start at £642 increasing to £855 with an RGB monitor and £1,090 when you add the JP150.

Acorn's Bob Coates commented: "With its ARM3 processor and the latest version of the PC Emulator, together with standard IBM-type interfaces for printers and peripherals, anyone who is at all uncertain of whether to go for a PC clone or an Archimedes need hesitate no longer".

Aimed at first time buyers of Archimedes both packs come with a two hour tutorial on two audio cassettes explaining the versatility of the machine and some possible applications.

To coincide with these launches Acorn have also reduced the prices of some of the Archimedes – £500 off the A540 and R260, £200 off the A420 and A410. In addition the A440 and R140 have been withdrawn, but the prices for the A3000 and Master 128 stay the same at £599 and £399 respectively.

Dreaming on...



PIPEDREAM from Colton Software (0223 311881) has an army of users who have used PipeDream on IBM PCs, Z88s, BBC Bs and Masters – known as View Professional – and on the Archimedes. Pipedream 4 has now arrived.

An integrated package which can be spreadsheet, wordprocessor or database, the new version – priced at £196 – can be upgraded from Pipedream 3 for only £80 and now includes Penguin Graphics.

This is a powerful program which can incorporate fonts and pictures to enhance your letters and reports, while spell checking and mailshots are all taken care off. The spreadsheet comes with a programming language to build your own functions and features background recalculation.

The database is fast and compact with the full range of sort, search and select options. On the graphics side HotLinks is a utility which gives you dynamic update and multiple scales for comparing statistics and so on. Penguin Graphics allows you to use any picture within a bar chart for instance.

If you'd like to have a closer look at the program you can obtain a demonstration disc for just £2 directly from Colton Software.

News from Oz

MULTI-MEDIA is most widely seen in the form of interactive video of the sort seen in museums throughout the country. The Australian National Maritime Museum are continuing this trend in Sydney.

Using four Archimedes 420s and six BBC A3000s they will be running applications specifically developed for five of the museum's six permanent displays featuring various aspects of Australia's maritime life and history: Fishing, Designing a Boat, Place Names, Ship Technology and Charting Australia.

The Archimedes were chosen because of their range of colours and animation capabilities. The software was especially written by Monitor Software. MD, Andrew Parker remarked: "We needed a heavily graphics oriented computer system, and Acorn's Archimedes 429 and BBC A3000 were the best options. They are fast enough to run good animation and allow interactive input from the visitor".

BEEBUG The Archimedes Specialists

A3000 Hard Drive DTP System

If you have been thinking of getting an A3000 there has never been a better time.

This special offer provides an excellent system ready for immediate use. The hard drive, RAM and Ovation are all installed ready so you can simply turn on and start.

Ovation is the highly acclaimed package combining word processing and DTP. Widely used in education it offers a whole host of features and is powerful and yet simple to use.

Our high speed IDE drive was designed especially for the A3000. It has an access time faster than ST506 or 8 bit SCSI, features auto-parking and sleep mode and is fitted in the internal expansion slot.

☐ Acorn A3000 Computer
☐ Genuine Acorn Colour Monitor
☐ Monitor Plinth
☐ 2 Mb RAM
☐ 20 Mbyte Internal Hard Drive
☐ Ovation DTP

Normal Price £1299 + VAT
Save Over £300

Special Offer £999 + VAT
(£1173.83 INC VAT)

The A3000 Learning Curve is also available if required. This includes Pacmania & Lemmings games, Genesis II Database, 1st Word Plus, Acorn PC Emulator and a 120 min audio training tape. Just add £40 + VAT (£47.00 inc VAT).

Courier Delivery Please add £9.00.

The A5000 Learning Curve

The A5000 is now available from BEEBUG, either from our showroom or mail-order.

BEEBUG are one of Acorns largest dealers and have been supporting the Archimedes range since its launch.

You can have total confidence in BEEBUG. Our technical team are always on-hand to provide any assistance and help that you may need with the A5000.

BEEBUG & RISC Developments also produce the magazine RISC User, dedicated to the Archimedes range.

BEEBUG - The Archimedes Specialists

A5000 Features

☐ RISC OS Version 3
☐ ARM 3 For Unbelievable Speed
☐ 1.6 Mb Format Floppy Drive
☐ 40 Mb IDE Hard Drive
☐ Acorn Multi-Scan Monitor

The New Learning Curve Pack

☐ New Multi-tasking PC Emulator
☐ Genesis 2 Database
☐ 1st Word Plus Wordprocessor
☐ Acorn DTP
☐ Lemmings and Pacmania Games
☐ Audio Training Tape
☐ Optional 300 dpi Ink Jet Printer

The A5000 Learning Curve Complete With Acorn Multi-scan Monitor Is Now Available For £1799 Inc.
Phone Or Write To Reserve Yours Now !
Courier Delivery Please Add £9.00.

Educational Establishments
Please Ask For Our Educational A5000 Price

0% Finance Over 12 Months NOW AVAILABLE ON THE A5000.
Deposit £179 Plus 12 payments of £135. APR 0%. Please ask for a finance application form.

BEEBUG

Phone Or Write For An Information Pack
All products covered by 12 months full warranty
Access / Visa / Switch / Cheque / Official Orders Welcome
Showroom hours Mon to Sat 9 am - 6 pm (Thu until 8 pm)

Beebug Ltd, 117 Hatfield Road, St. Albans, Herts. AL1 4JS. TEL 0727 40303 FAX 0727 860263

Diary Dates

Bett '92
January 22-25
Barbican Centre, London
Contact: EMAP, 071-404 4844

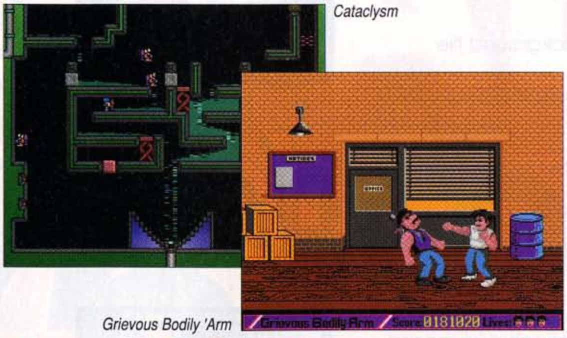
There are always many new hardware and software launches here. Primarily aimed at teachers and IT coordinators, this year's show will be stressing the practical aspects of IT in the curriculum with a comprehensive program of free seminars and demonstrations.

The Education Show
March 5-7
NEC, Birmingham
Contact: EMAP, 071-404 4844

Sponsored by the National Curriculum Council this is the second annual show. Again stressing the practical aspects of education, this show has a wider curriculum base.

Midi Music Show
April 24-26
Hammersmith, London
Contact: Westminster Exhibitions, 081-549 3444

This third show is aimed at musicians and anyone interested in computers and music, for making sounds in their own right or for incorporating them into bigger and better things.



Cataclysm

Grievous Bodily 'Arm

Something's nasty, addictive and wet

ADDING to the flock of new games out in time for Christmas are the inimitable Fourth Dimension. **Cataclysm** puts you into the role of a spaceship's supervisor.

Having crashed into a watery planet you must dash around the various parts of the ship getting away from the encroaching water.

This can only be done by moving the water towards collecting vessels. To add to your woes the computer is no longer your friend, and the cargo of zoo animals is on the loose too. Due on the streets very soon for £24.95

Due at the same time and price is **Grievous Bodily 'Arm**, which is introduced as a "brutally uninhibited arcade beat 'em up".

And that is just what it is. The plot, if one were needed, centres on an evil scientist who has manufactured a cheap and nasty drug which has filled a whole city with dangerous addicts.

The solution is to persuade the scientist of the error of his ways, in the only way you know how. Your only problem is fighting your way to him.

Profit and loss

INDUSTRY standard accounts packages are generally PC-based and are mostly accessible for BBC Micro users through the PC Emulator. However, two Archimedes houses have come up with professional accounts packages to counter the PC's predominance.

Arcounts, from Kendal Computer Centre (0539 722559), is said to be simple to learn but doesn't compromise on features. Developed after experience with IBM PC programs, it aims to use their strengths and improve on the weaknesses.

An individual account can be placed on hold, as can an individual transaction, or an account can have its own credit terms which analyses and statements can access.

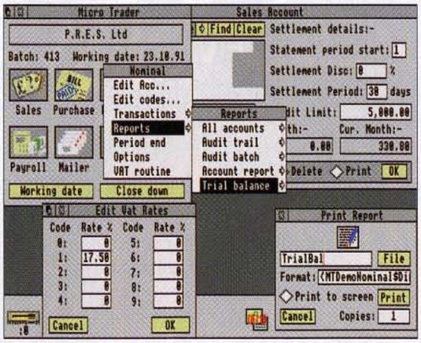
In addition there are automatic statement issue, debt chasing and VAT returns. Written with sales and purchase credit businesses in mind, Arcounts Manager takes you to trial balance and has a self re-building data file system too. All for £299.

A modular system from PRES (0276 72046) called the Micro Trader Business System is also now available for the Archimedes priced at £79.95 for each program module. An integrated accounts package it is aimed again at the business user.

The fully multi-tasking user interface of Micro Trader is polished and easy to use and the modular system allows users to extend the software as the needs of a business grows.

Integrated sales, purchase and nominal ledgers are featured and information can be entered and updated easily without repetition.

Facilities allow the printing of invoices, credit notes, statements and remittance advice as well as profit and loss accounts and balance sheets.



P.R.E.S. Ltd
Batch: 413 Working date: 23.10.91
Settlement details:-
Statement period start: 1
Settlement Disc: 0 %
Settlement Period: 30 days
dit Limit: 5,000.00
th:- 0.00
Cur. Month:- 330.00

Code	Rate %	Code	Rate %
0:	0	5:	0
1:	17.50	6:	0
2:	0	7:	0
3:	0	8:	0
4:	0	9:	0

TrialBal
Format: <MTDemoNominal$Di
Copies: 1

The Micro Trader modules

There are five modules: Sales Ledger, Purchase Ledger, Stock Control, Nominal Ledger, Final Accounts and a Mailing Module. The last costs £39.95.

VAT is dealt with comprehensively and there is a unique cashup facility for retail business. Add stock control and mailing to double entry accounts with an audit trail and trial balance and this promises to be an extremely comprehensive system.

The entire system will operate with a single floppy and no disc swapping. It also runs quite happily with 1Mb of memory. Product support is invaluable and PRES are offering 30 days free telephone support, then it'll cost you £25 a year.

A demonstration disc is available from PRES.

SCSI power

TO CONNECT an Archimedes to a wide range of peripherals: Hard drives, removable discs, ram memory cards, CD Roms, and Tape streamers to mention just a few, you'll need an SCSI interface.

Some 16-bit interfaces are actually 8-bit plus an extra 8-bits buffered externally. Lingenuity (098 685 477) have released a true 16-bit interface with their Target Mode – allowing fast data transfer and communications.

Any Archimedes or BBC A3000 owner with an 8-bit SCSI interface can follow Lingenuity's upgrade path to obtain a 16-bit interface whether they have a Lingenuity card or one from another manufacturer.

Lingenuity guarantee that all SCSI drives will work correctly with their new 16-bit SCSI interface card.

Morley Electronics (091-257 6355) have also just launched a SCSI interface for the Archimedes. It's priced at £169 for the A3000 and £149 for the 400 series and A5000, with cached interfaces costing £219 and £199 respectively.

These internal 16-bit interfaces are totally transparent as are all SCSI interfaces but give an inexpensive and generic connection with the structure of each device connected through the SCSI being totally transparent.

Each expansion card can support up to seven devices and four cards can be installed in a 400 series giving a maximum of 28.

In addition software is provided which includes a hard disc formatter, a configuration program as well as a speed tester.

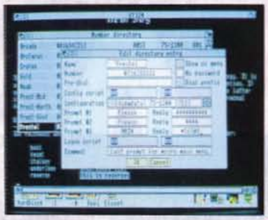
The standard interface is fast but if speed is of primary importance the cached card offers speeds of up to 3790KB/s compared to 2121 KB/s with the standard interface.

ARM 3 prices cut

THINKING of upgrading your BBC A3000 with an ARM3? Then Aleph One have just reduced the price of their upgrade to £299 plus VAT. They are able to fit it without invalidating the warranty so it's well worth a look.

Hearsay II is a new release of the popular general purpose communications package.

- Fully RISC OS compliant
- Multi-tasking, including background file transfers
- VT320, VT102, VT52, ANSI & Teletype scrolling text terminals
- Viewdata & Minitel (CEPT 2) terminals
- Viewdata editor & telesoftware download
- Advanced Tektronix 4105 colour graphics
- Scalable terminal windows in all modes
- Xmodem, Xmodem 1K, Ymodem, Zmodem, Kermit, SEAlink & ASCII file transfer
- Campus 2000 terminal
- Script language based on a subset of C++
- Macro processor & fully definable keyboard
- Support for RISC OS printer drivers
- Number directory with auto-logon & password protection
- Modem drivers for most popular modems
- Vasscom and MNP link-level error correction



Hearsay II

WEMBLEY
1 GERRY COTTLES CHRISTMAS CIRCUS
2 THE ARENA
3 THE STADIUM
4 WEMBLEY CENTRE
9 HOW TO BOOK TICKETS VIA PRESTEL

Price £75 + VAT

Please write or phone for a full specification

Upgrade from Hearsay I, £35 + VAT + £3.10 carriage
Please return original disc to the address below.

New from RISC developments for the Archimedes, A3000 & A5000

MOULDED TEXT
Flexibility and control

TYPESTUDIO

Interactive effects

The flexible approach to creating text effects

TypeStudio allows outline fonts to be manipulated to produce professional quality adverts, posters, banners, logos, letterheads etc. - the possibilities are endless.

Text may be flowed along straight or curved paths, or moulded into almost any shape. A wide range of interesting effects may then be applied to enhance the design further. You can use all these effects on any Draw files too!

TypeStudio is intuitive to use, especially to those users familiar with Draw. Unlike other text effects packages, paths and moulds may be created and edited using the drawing tools provided, so you can do all your design work using just the one package.

TypeStudio may be used as a stand-alone package, or you may export the draw files produced, to almost any DTP or drawing package. The outline font manager and a range of fonts are supplied.

- Text along straight & curved paths
- Moulding text to shapes
- Wall, floor and graduated shadows
- 3-D effects
- Plinth effects
- Mirror effects
- Curved and straight line drawing tools
- Save in internal & Draw file formats
- Printing using RISC OS printer drivers
- Grid and zoom facilities
- Copy, rotate and magnify
- Slanted text effect
- Import of Draw files
- Full colour support

Price £45.00 + VAT

RISC Developments Ltd. 117 Hatfield Road, St. Albans, Herts. AL1 4JS
Tel: (0702) 40303 Fax: (0727) 860263

Mountains of extras

ALPINE Software (0762 342510) are famous for producing ALPS – their Adventure Programming Language System – and for the more recent Creator Arcade Games Designer on the Archimedes. They have now have launched three utility discs to help all budding creators out there.

The Creator Support Disc retails for £19.95 – or £14.95 when bought with Creator. It contains several useful programs including a sprite compacter – you can now put even bigger sprites on to the game disc – as well as a Mode Converter so you can convert sprites to Mode 13 for use in Creator.

Utilities are also included to make sprites into objects which can then be used to build complex backgrounds from individual building block-type scenery sprites and others to run games in Mode 9 which is faster and doesn't demand so much memory.

Two library discs are available too for £5 each. The Sprite Library Disc 1 is a collection of sprites for the less artistic and provides animated characters such as commandos, terrorists, dwarves and wizards, as well as scenery and background sprites on modern and medieval themes. A nice addition is a little program to show you how to animate the characters.

Sound Effects Disc 1 includes sampled and digitised sounds including bangs, vehicles, sci-fi, vocal and weird noises.

Serious about figures

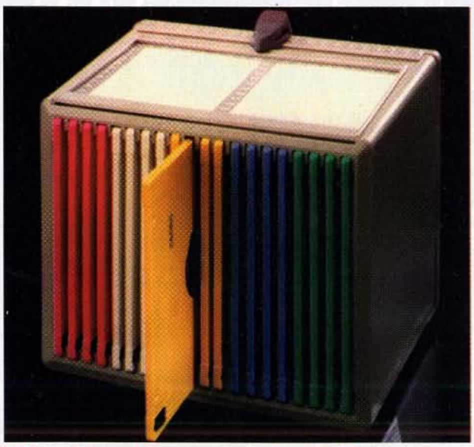
STATISTICAL calculations are one of those areas where computers excel. However, you do need the software to manipulate the figures first.

Several years ago Serious Statistical Software (051-327 4268) produced First for the Master 128. Time and the arrival of the Archimedes saw its migration to the 32-bit world.

Most interest is show by teachers for their own uses, or as part of specific projects as well as in engineering, medicine, psychology and the physical and life sciences.

However, not all the facilities were needed by everyone, hence the development of First JR. Costing £49 – or £140 for a school site licence – First JR has a built-in manual with extensive data handling and display facilities.

Should you find you need big brother First JR can be custom upgraded with one of First's advanced modules



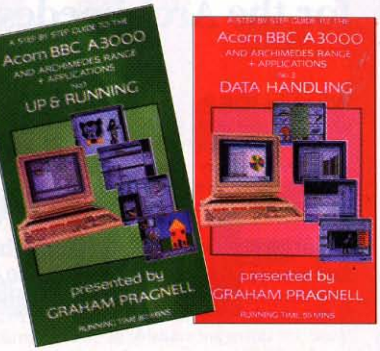
Tidy desks and tidy minds

IS your desk covered in discs? If so Virgin (0293 776252) have a possible solution – the Microfile – it is only available for 3.5in discs – which allows instant access to up to 20 discs.

It is built like the telephone index where you move a pointer to a letter, press a button and it springs open to the page – in this case disc– you want.

Available for around £19.95 they can be bought with or without discs.

Light, sound and action



FOR new users of the Archimedes the power can be a little daunting. If you haven't opted for the Learning Curve Packs you may feel that you're not getting the best from your 32-bit machine. Pedigree Films (071-231 8271) offer a solution with their Step-by-Step Guide to the Acorn BBC A3000 and Archimedes Range.

Using the video player and TV screen as the teaching medium you can have your very own tutor to take you through four videos covering the aspects of Up and Running, Text Processing, Data Handling and Art and Graphics.

With easy to understand directions, you don't have to take notes, just rewind the video.

Your tutor is Graham Pragnell who is an advisory teacher for Information Technology. The videos last between 55 and 80 minutes and are extremely professionally produced and presented. They cost a mere £14.99 each.

Printer plans

A NEW crop of printers offers something to everyone regardless of their budget.

Hewlett Packard (0344 361403) are adding the HP Deskjet 500C to their range. Now with colour capability, it offers laser quality colour printing for £749.

Alternatively you can stick with the black and white version for £499 and this includes a three year warranty.

Resolution is 300 dpi the switch between colour and black and white modes simply involves changing a cartridge.

Page printing speeds are well worth considering, with a monochrome one appearing in about 20 seconds and a colour page in around four minutes – these times, of course being dependent on what you're printing.

Star (0494 471111) offer an ink jet printer, the StarJet SJ-48, for £345. Heralded as a near silent personal printer, it has letter and near letter quality modes and a print speed of 100 characters per second.

As the cartridge contains both ink and print head with a life of 700,000 copies – 1.4 miliion in economy mode – this should help keep running costs down.

The eagle has landed

WILD Vision, synonymous with multimedia hardware, have just hatched some new additions to their brood.

Eagle MI is a desktop video card which allows high resolution video images to be shown in real-time. The video source can be selected from a range of video standards including S-VHS and NTSC.

The display window can be scaled or zoomed and combined with computer-generated page layouts, or even overlaid into a second video input via a genlock and overlay system.

Applications so far can be found in the interactive video field. It retails for £874 and a little bird tells me that a higher specification Eagle is in the egg.

Hawk V9 Mk II is a new version of the highly successful V9. The new card is a single width expansion real-time colour digitiser which can be used equally successfully with any of the Archimedes range.

The Mk II features hardware dithering which produces a high quality live video image in a window on the desktop. Price, £339. The Mk I can still be bought for £199.

IDE Hard Disc Upgrades

for the Archimedes & A3000

SPECIAL OFFER
A3000 Internal Drive
Now Only
£195 + Vat

What is IDE?

IDE (Integrated Drive Electronics) is the latest interface standard for connecting hard drives to personal computers and is used in the new Acorn A5000. Our drives all feature a memory cache system, which when coupled with our custom designed 16 bit interface give very fast access times indeed. Typically 50% faster than the Acorn ST506 drives used on the 300 & 400/1 ranges.

What drive options are available?

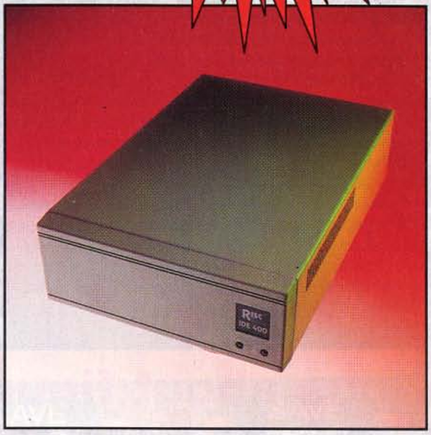
Archimedes 310, 440, 400/1 and 540.

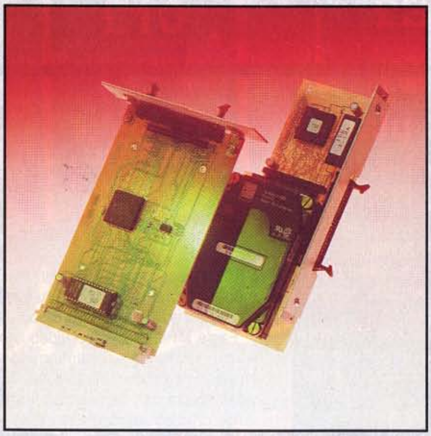
Drive sizes currently available are 42, 89 and 105 Mbyte with a typical access time of 28ms for the 42Mb models and less than 20ms for the others.

These 3.5" drives are available as either internal or external units, and use our high speed 16 bit IDE interface card that fits in your podule backplane. External drives are attractively cased to match the computer and have their own internal power supply and fan. One interface card may be used to control both an internal and an external drive.

A3000

Our A3000 external solutions consist of the 16 bit IDE podule in a special metal podule box which fits to the back of your A3000 (under the monitor stand). Drive sizes are 42 Mb, 89 Mb or 105 Mb. We are also able to offer internal IDE drives for the A3000 that fit into the internal podule slot. These special 2.5" drives are available in 20, 42 and 89 Mb formats and have access times of 23ms.





Hard Cards

These are 2.5 inch hard drives mounted onto our interface card for fitting into a standard podule slot in a 310, 400 or 540 computer. They are particularly useful when you already have one internal hard drive and want another.

What does the future hold?

IDE is a relatively new interface standard, but has already gained massive support. It has been endorsed by Acorn in the A5000 and is clearly the way ahead for users of Acorn systems. The next few months will see drives up to 400Mbyte, with larger capacities, and devices such as tape-streamers following very soon. The future for IDE is very bright indeed.

Quality

You may have total confidence in our products. Only the best drives from recognised manufacturers are used, Conner, Seagate, NEC etc. All drive kits are supplied with full fitting instructions and a user guide to ensure that you will have no problems at all. Our interface conforms fully with Acorn's IDEFS specification.

Money Back Guarantee

If for any reason you are dissatisfied with one of these products we offer a full 14 days money back no quibble guarantee.

	Internal		***External***	
Description	***Stock Code***	***Price***	***Stock Code***	***Price***
Archimedes 42 Mb	*5251*	*£259.00*	*5261*	*£349.00*
Archimedes 89 Mb	*5252*	*£379.00*	*5262*	*£469.00*
Archimedes 105 Mb	*5253*	*£459.00*	*5263*	*£549.00*
Hard Card 42 Mb	*5291*	*£495.00*		
Hard Card 89 Mb	*5292*	*£695.00*		
A3000 20 Mb	*5270*	*£195.00*	*N/A*	------
A3000 42 Mb	*5271*	*£495.00*	*5281*	*£359.00*
A3000 89 Mb	*5272*	*£695.00*	*5282*	*£479.00*
A3000 105 Mb	*N/A*	------	*5283*	*£559.00*

All prices include High Speed IDE Drive Interface, Manual & Fitting Instructions.

All prices are Ex VAT

Available from your local dealer, or directly from RISC Developments (please add £9 carriage).

RISC developments

RISC Developments Ltd is an associated company of BEEBUG Ltd.

RISC Developments Ltd, 117 Hatfield Road, St. Albans, Herts AL1 4JS
Tel. (0727) 40303 Fax. (0727) 860263

This advertisement was produced entirely with Ovation DTP from BEEBUG

Get all the answers at hands-on open day

WATFORD Electronics and The Micro User are to hold another of their popular events, this time the Christmas Open Day, to be held on Sunday December 1, between 10am and 5pm at Jessa House, 250 Lower High Street, Watford.

Watford's Technical and Sales personnel, plus representatives from Acorn will be on hand to answer questions on the whole Acorn range, including the new A5000.

The editorial team from The Micro User will also be in attendance with answers to some of those queries you have been dying to ask. Mike Cook of 'Body Building Course' frame will be on hand to answer any hardware quieries.

Companies demonstrating their products will include Colton Software, Computer Concepts, Minerva, Panasonic, Silicon Vision, Superior Software and Taxan.

Free refreshments will be served all day.

Boxing hard

THE Serial Port (0243 531194) have launched two pieces of hardware for the A3000. The HardBox is a plug-in-and-go hard disc system with fan and power supply.

If differs from existing drives as it takes any standard controller podule as well as any capacity 3.5in low profile hard drive.

This should mean a saving if you shop around, with a typical system consisting of an 8-bit SCSI card with a 45Mb drive for about £380.

Next off Serial Port's production line is an upgrade for the new A5000 which expands its memory it to its maximum of 4Mb. Just plug in a card and off you go.

The upgrade costs £99 for a 2Mb card – the Learning Curve A5000 comes with 2Mb as standard – or £129 for a 4Mb expansion to the base machine.

Saving space

ANYONE trying to cram as much on to their Archimedes floppies and hard drives will appreciate such programs as ArcFS and Spark from David Pilling.

The original ArcFS was available in the public domain but the new read/write version is a fully commercial and copyrighted program costing £50.

Into the fray come Computer Concepts (0442 63933) with their Compression program retailing for £57.57.

Both ArcFS and Compression work as a separate filing system, but where ArcFS works on individual archive files and is compatible with archives from other machines, Compression works on an entire filing system.

Banana rhythm

FOLLOWING the acclaimed game Top Banana from Hex (071-701 0652) the company have just released a mix of the soundtrack of the game on 12in single. Entitled Global Chaos by KT and Hex,it can be found on the Ninja Tunes label.

TOP BANANA
TOP BANANA

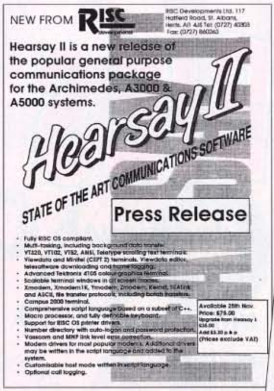
The single, which is produced by Coldcut, will feature vocals and a backing created by Hex using the cyber-composer music sequences.

This program was developed by Hex using chaos theory to generate complex musical patterns. The music generation software, Cybercomposer, will be available in its own right early next year. A video is also hanging around in the wings.

On the games side Hex are in the process of finishing Y. Following on from the ecological theme in Top Banana, Y is set among abandoned nuclear waste pipes.

Contaminated with pellets of highly radio-active Iridium-13 and a whole host of mutated creatures you have to clear out a pipe against a deadline.

The use of chaos theory results in the music mutating, as do the creatures you face.



NEW FROM RISC

RISC Developments Ltd. 117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel: (0727) 40303 Fax: (0727) 860263

Hearsay II is a new release of the popular general purpose communications package for the Archimedes, A3000 & A5000 systems.

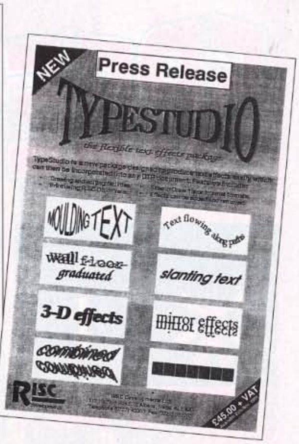
Hearsay II

STATE OF THE ART COMMUNICATIONS SOFTWARE

Press Release

- Fully RISC OS compliant.
- Multi-tasking, including background data transfer.
- VT320, VT102, VT52, ANSI, Teletype scrolling text terminals.
- Viewdata and Minitel (CEPT 2) terminals. Viewdata editor, telesoftware downloading and frame logging.
- Advanced Tektronix 4105 colour graphics terminal.
- Scalable terminal windows in all screen modes.
- Xmodem, Xmodem1K, Ymodem, Zmodem, Kermit, SEAlink and ASCII, file transfer protocols, including batch transfers.
- Campus 2000 terminal.
- Comprehensive script language based on a subset of C++.
- Macro processor, and fully definable keyboard.
- Support for RISC OS printer drivers.
- Number directory with auto-logon and password protection.
- Vasscom and MNP link level error correction.
- Modem drivers for most popular modems. Additional drivers may be written in the script language and added to the system.
- Customisable host mode written in script language.
- Optional call logging.

Available 25th Nov
Price: £75.00
Upgrade from Hearsay I: £35.00
Add £3.30 p & p
(Prices exclude VAT)



NEW

Press Release

TYPESTUDIO

the flexible text effects package

TypeStudio is a new package designed to produce text effects easily which can then be incorporated into any DTP document. Features include:

MOULDING TEXT

Text flowing along paths

wall floor graduated

slanting text

3-D effects

mirror effects

combined

RISC

£45.00 + VAT

A rose by another name

RISC Developments (0727 40303), née Beebug, are enhancing their Archimedes products with some additions and updates.

Typestudio produced text effects which can be used in a variety of DTP packages. So if you plan to add flair to publications for £45 you can mold text into new shapes, flow your prose along paths, give 3D effects to headings or even mirror your words.

Hearsay users will be pleased to see the release of Hearsay II, a general purpose communications package. The upgraded costs £35 and the package is £75.

Hearsay II multi-tasks, allows you to log your calls, as well as providing a number directory and auto-logon and password protection.

It supports X, Y and Z-modem as well as Kermit, Ascii and SEAlink. In addition there is Vasscom and MNP link level error correction as well as modem drivers for the most popular markets, with the promise of more to come.

A completely re-written version of their backup utility, Hard Disc, is available. It is twice as fast as the original and users now have added peace of mind provided by a verify function and the ability to ignore specific files or filetypes.

The program boasts a much improved user interface and is said to be just as reliable and easy to use as the original.

More out of Europe

RELATIVELY new players in the Archimedes market are Klein Computers from Ruesselsheim, Germany (010 49 6142 81131). They have two quite diverse products, the Mouse Recorder and BestForm.

The latter is a DTP formulae editor which could be the answer to mathematician's and scientists prayers. Trying to create complex formulae in a DTP program can be a complex operating. However, for £49 BestForm aims to make things easier.

Exporting formulas as draw files, you can pop them into a frame in your DTP package and they can be loaded into BestForm for editing.

There are 10 types of brackets, three types of fractions, roots plus the availability of Greek letters. A host of other functions are included.

Mouse Recorder is aimed at a different audience – anyone interested in presentation. Whether developing your own program, teaching or demonstrating, the Mouse Recorder Development Pack will let you create a display that can be left to its own devices.

Keeping track

VERSION control is usually found in large software projects but it is a useful organisational feature to build into any product development.

All previous versions of each file will be archived, together with details of user comments and the dates of each revision. This not only reduces confusion, which can grow with a program, as to which changes were made, when and why.

!VersnMgr from Baildon Electronics (0274 580519) works with all file types from text to binary, from Basic to directories.

FREEBIES

snap
t
2
pete

Educational software worth more than £800 must go to good homes

NOT many educational programs are equally useful in school and in the home, nor is it easy to find programs for all formats – Electron, BBC, Master Compact and Archimedes.

Triple R Software is a new educational software house with the aim of producing quality, educationally sound programs which children can use just as well with parent or teacher. They vary in price from £12.95 for the tape version to £19.95 for the Risc OS programs, these prices include the overlays where needed.

Their first five releases have been well received, which has a great deal to do with their new multi-format overlays. Like most good ideas, it is a very simple utility which is ideal for younger children and enhances the matching skills on screen.

A specially tooled plastic overlay which fits over any sized keyboard, fastening underneath, shows the keys or objects the child will need to use in a particular program.

Teachers have long bemoaned the fact that teaching very young children to use a keyboard is difficult as the keys only show the upper case characters,which in many cases are quite different to the lower case letters they are used to. Now this has now changed.

Picture Book uses the best graphics capabilities of each computer to create a suite of simple to use and colourful programs – Alphabet Book, Spell It, Count'em and Snap – to practise lower case spelling and recognition skills. As with all the Tripe R programs, the fun aspect of learning is stressed.

Learning about currency is often a matter of trial and error. But with the circus as a theme **Money Matters** uses the overlay to allow children to discover the differences in size and colour between the different coins we use.

The higher levels are for the more advanced and are designed to cover specific National Curriculum targets.

A more advanced program is **DataWord**. Written with the express purpose of being easy to use yet meeting the National Curriculum attainment target needs for a database.

A card index can be used as a word processor with keyboard overlays in either abcdef or qwerty formats.

Target Maths is a suite of four clever educational games, again designed with the National Curriculum in mind. Eliminator helps with tables, NumberFax shows factors, odd and triangular numbers, while ScaleFactor reads the linear scales exactly and helps with arithmetic skills and Slider is a computer version of Snakes and Ladders.

What to do

Simply write directly to *Micro User Freebie Offer, Triple R Software, 1 Percy Street, Sheffield S3 8AU.* Specify which of the five products you'd prefer – Picture Book, Money Matters, DataWord, Target Maths – and in which format and one of these inventive new educational games could be yours.

The 50 packages on offer will go to the first 50 readers whose name and addresses are pulled from the lucky dip sack after December 18.

Eye-catching precision

CANCEROUS tumours of the eye are being treated successfully at the Douglas Cyclotron Centre on the Wirral with the help of Acorn machines.

The cyclotron particle accelerator was first used in 1984 when a BBC B controlled the scanner used to make many thousands of measurements. By accelerating protons through the equivalent of 62 million volts inside a vacuum tank hidden in the centre of a 120 ton electromagnet, the protons are then used to destroy the tumour without damaging the eye.

Measurement of the profile and penetrating power of the beam is essential and this is where the Archimedes comes in. Using precision stepper motors a tiny sensor is programmed to scan through the beam and record how the intensity varies with depth and position. This data goes through 10 processes and displayed in real-time for the physicist to check that the treatment beam is correct.

Several sophisticated multi-tasking applications have now been developed to allow rapid and accurate scanning of the required parameters, recording and printing of the resultant displays needed for patients' records and to develop future uses of the beam.

Artistic licence

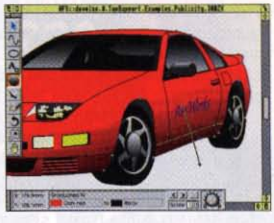
ANYONE with access to an IBM PC will be familiar with the excellent CorelDraw, while if you have ever used an Apple Macintosh, Illustrator will have surely impressed.

Now Computer Concepts (0442 63933) are to launch ArtWorks to take on the mantle of ultimate drawing package for the Archimedes.

With this graphics illustration program object-based graphics can be produced in a similar way to Draw, but with vastly increased capabilities. Due for release early in 1992 it will cost around £150.

While ArtWorks is compatible across the whole Acorn 32 bit range, on an ARM3 machine you'll be able to redraw complex illustrations reputedly four to five times faster than on a Mac IIci or 486 PC.

In addition to speed ArtWorks promises a whole host of impressive features for applications where high resolution graphics and screen refresh speed in essential.



It is planned as a modular program, and new tools and features can be added to bring specialist operations on line.

The on-screen information bar so popular on Macintosh programs will display the current font, size and so on. and all the fields can be edited, so avoiding the need for massive dialogue boxes.

Files from Draw, Illustrator and CorelDraw can be loaded directly while a conversion utility will allow other formats to be included.

Still under development, but with the addition of powerful text handling, colour range and multi-window views, ArtWorks looks very promising indeed.

Sing-along-an-Archie

IT WAS only a matter of time, before someone used a computer to bring the ubiquitous Karaoke craze into the home. EMR (0702 335747) have beaten the rest with the Karaoke Performer.

Priced at only £10 it is substantially cheaper than buying a home-based Karaoke system which is making its way into the UK market from Japan. It consists of six professional backing tracks on audio tape and an Archimedes or BBC disc containing the Karaoke Performer control program.

As the text scrolls in various ways across the screen you can follow the words in time with the audio tape. The controller program can be used to show a separate graphics program or you can create your own backgrounds with the graphics animation application also supplied.

With over 90 different sets featuring '50s to '80s hits there are a lot to choose from. For the real enthusiast there is a full Karaoke unit with echo microphone, mixer and amplifier/speaker system, which complement the Performer, priced at £69.

Watford Electronics *presents ....*

Winter Hands-On Open Day

Sponsored by: The Micro User and BBC Acorn User

Watford Electronics

To Be held at:

JESSA HOUSE

on SUNDAY

1st December 1991

10.00am to 4.00pm

SALES ADVICE

Watford Electronics Technical and Sales personnel will be on hand to discuss all your technical queries and computer requirements. Come and see live demos of popular BBC/ Archimedes Software, Hardware and Watford Electronics own range of PC Compatibles.

Yet another chance to bring the family and visit Watford Electronics to watch, learn, and talk to other like minded enthusiasts, experts and novices on the subject of Acorn BBC and Archimedes range of home computer systems.

Hardware and Software – Amongst various products, we shall be demonstrating our NEW ...

Archimedes Hard Card
Archi COLOUR Hand Scanner
Aries Alphascan Monitor
Archimedes Hi-Res Graphics Card
Archi Real Time COLOUR Digitiser
ARM 3 Upgrade – for A300/400 and A3000

Also appearing will be **NEW** products from:

Acorn Computers
Minerva
Colton Software
Computer Concepts
Taxan UK
Panasonic UK
Silicon Vision
Superior Software

Technical Support

- **Watford Electronics:** Our technical team will be available to discuss any technical queries and offer advice.
- **BBC Acorn User:** Contributors and the editorial team will be at hand to answer all your questions.
- **The Micro User:** Mike Cook will be available to help and advise on matters related to BBC/Master.
- **Gordon Taylor:** The renowned Archi 'Guru' and technical writer will be available to advise on matters related to Archimedes.
- **Acorn Computer's** representatives will talk about proposed new products and answer all your questions.

Educationalist Support

– A private area allocated to the specialist in education will be provided.
– Staff will be on hand to talk about current trends and requirements in the educational sector.
– Watford Electronics Managing Director, Nazir Jessa, will be happy to discuss special deals and packages for individuals & educational establishments.

Instant Finance available up to £1,000

Purchases can be made at the Open Day and Instant Credit deals will be available via Lombard Tricity Finance Ltd (subject to status). Extended finance over 36 months on any purchase over £300 + VAT (APR 36.8%). Identification will be required, ie Driving Licence, Credit Card and Bank Card. A deposit of 10% of your purchase is all you need to pay on the day.

***** FREE REFRESHMENTS WILL BE SERVED *****

Orion Computers Ltd.

Acorn Key Dealer ☆ Component Level Service Centre *Econet Service & Installation Centre ☆ Citizen Premier Dealer*

PLEASE REMEMBER WHEN COMPARING PRICES - WE DO NOT CHARGE CARRIAGE

on standard delivery within the UK. Next Day Courier Service £6.00 Carriage on Export Orders charged at cost.

Ordering Information

By Post

Please send your orders including a signed cheque, postal order or
credit card number & expiry date (**NOT CASH**) to:
Department MU12
250 Leyland Lane
Leyland
Preston
PR5 3HL
All cheques and bankers drafts to be made payable to
Orion Computers Limited

By Telephone

Telephone orders may be place between 9:00am and 5:00pm
Please have your credit card number and expiry date ready
Tel: **(0772) 623000** Fax: **(0772) 622917**

In Person

Callers most welcome. We are situated 3 miles from M6 J28.
(Please see opposite page for directions)

All offers subject to availability. Government & Educational Orders Welcome. **Minimum Order Value £10.00. Minimum Educational Order Value £15.00. Please note. VAT is quoted at 17.5%**

Acorn Computers

New Products

Acorn A5000 & Acorn Badged Multisync
RISC OS 3.00, Arm 3 25Mhz CPU, 40Mb IDE Drive, 2Mb Ram, 1.6Mb Floppy,

Mk II Learning Curve
1st Word PLus, New PC Emulator, Genesis Plus, 2hr Introductory cassette, LC Mag, & Pacmania, also just over the christmas period Lemmings & TDK blank discs.

Description	*Ex. VAT*	*Inc. VAT*
BBC Master 128K	399.00	468.83
BBC A3000	599.00	703.83
BBC A3000 Learning Curve Mk II	637.45	749.00
BBC A3000 Learning Curve Mk II Colour	850.21	999.00
(Includes Acorn AKF17 & Stand)		
BBC A3000 Special Access	679.00	797.83
Archimedes 410/1	899.00	1056.33
Archimedes 420/1 Learning Curve	1105.53	1299.00
Acorn A5000	1499.00	1761.33
Acorn A5000 Learning Curve Mk II	1531.06	1799.00
A5000 price includes an Acorn Multisync Monitor		
Archimedes 540	2495.00	2931.63

Special Offer when purchased with computer!!

A3000 -	£35.00 discount off other goods bought with computer, plus either 2Mb Upgrade F.O.C., 4Mb for £100.00
A410/1 -	20Mb IDE HD + Upgraded to 2Mb F.O.C.
A420/1 -	40Mb IDE HD + Upgraded to 4Mb F.O.C.
A540 -	4Mb RAM Upgrade F.O.C.

We operate the Acorn Education Scheme.

We can supply Mk II Learning Curve Models on the Acorn 0% Finance Scheme.

Finance available over twelve months.	Deposit	Monthly
A3000 Learning Curve Colour	99.00	75.00
A5000 Learning Curve & Acorn Multisync	179.00	135.00

Finance Prices Shown above **INCLUDE VAT**

Cables

Description	*Ex. VAT*	*Inc. VAT*
Arc to Monitor + Audio 1.2m (Not 8833 II)	£8.65	£10.16
Arc to 8833 Mk II Monitor Cable + Audio 1.5m	£8.65	£10.16
Arc Keyboard Extension Cable 2m	£7.75	£9.11
Arc Mouse Extension Cable 2m	£7.75	£9.11
Arc Keyboard Replacement Cable	£6.95	£8.17
Arc Mouse Replace. Cable (State Type)	£6.95	£8.17
4 way protector socket on trailing lead	£17.95	£21.09

A400/1 Accessories

Items marked with an *
can be used on A300/540.

Description	*Ex. VAT*	*Inc. VAT*
1Mb RAM Upgrade	£39.00	£45.83
2Mb RAM Upgrade	£75.00	£88.13
3Mb RAM Upgrade	£105.00	£123.38
Above memory fitted for £10.00		
Acorn Ethernet Card	£219.00*	£257.33
Arm 3 Upgrade (Adelph One)	£349.00	£410.08
4Mb to 8Mb Upgrade	£649.00	£762.57
Com. Con. Scan-Light Mk II A4	£369.00*	£433.58
Com. Con. Sheet Feeder for above	£149.00*	£175.08
Com. Con. Scan-Light + Feeder	£454.00*	£533.45
Com. Con. Scan-Light Junior	£165.00*	£193.88
Com. Con. Scan-Light 256	£199.00*	£233.83
Com. Con. Sheet Feeder for A4	£94.00*	£110.45
VIDC Enhancer	£27.00	£31.73
Econet Module	£48.00*	£56.40
Beebug Disc Buffer	£34.00	£39.95
Orion TV Modulator + Audio	***£65.00****	***£76.38***
Archimedes 540 Only		
4Mb RAM Upgrade (Upto 16Mb)	£379.00	£445.33
VIDC Enhancer (540 only)	£10.00	£11.75
Acorn A5000 Only		
2Mb Ram Upgrade	£125.00	£146.83

Monitors

Description	*Ex. VAT*	*Inc. VAT*
Acorn Colour Monitor (AKF17)	£200.00	£235.00
Philips CM8833 II Colour Monitor	£209.00	£245.58
Microvitec CUB3000	£200.00	£235.00
Taxan MultiVision 775 (0.28 d.p.)	£389.00	£457.08
Taxan MultiVision 795A (0.26 d.p.)	£439.00	£515.83
(FST Black Trinitron Anti-Glare Tube)		

A3000 Accessories

Description	*Ex. VAT*	*Inc. VAT*
Orion 1 Mb RAM Upgrade	£55.00	£64.63
(Expandable to 4Mb using only 8 chips)		
Orion 3 Mb RAM Upgrade	£156.00	£183.30
A3000 Podule Expansion System	£54.95	£64.57
2 slot external podule expansion case allowing the use of two compatible 400 series cards simultaneously. For example, the CC Laser Direct Card with an Orion IDE Interface.		
Serial Upgrade	£18.00	£21.15
PRES Monitor Stand	£24.95	£29.32
CC Scanlight Junior A3000	£165.00	£193.88
CC Scanlight A4 Mk II A3000	£369.00	£433.58
CC Sheetfeeder for A4 Scanner	£149.00	£175.08
CC Scanlight A4 + Sheetfeeder	£454.00	£533.45
CC Scanlight 256	£199.00	£233.83
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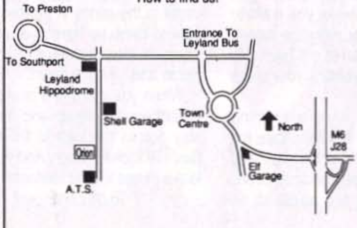

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THE MAD hatter

It's amazing how many new readers we pick up who are confused about the Missions in Elite – they don't seem to know how they are triggered and the like. So here is a brief account of what to expect – and where.

The First Mission starts in Galaxy One and is triggered on receipt of the first *Right On Commander!* message. Land at your nearest Space Station and the Mission message will be given. My own preferred trading route is between Anarlaqu and Vetitice.

Head for Reesdice for the next message – press f6 on landing. Launch and use Galactic Hyperspace and go to Galaxy Two: Land at Cearso (Anarchy) then press f6 to find your next destination – Errius. After that, Inbibe, Ausar, Usleri and finally Orarra are where to go. The Constrictor then awaits you.

If you have unwittingly travelled through too many Galaxies, try returning to Galaxy One to trigger the Mission message. If that fails, try Reesdice first and then Cearso.

Mission Two: Once you are Dangerous, travel to Galaxy Three and await events. You'll be sent on a nice little errand. I hope this helps to clear up the confusion.

Stephen Jalim knows how to wend his way into a Hatter's heart – crawling and grovelling. However –

Transports of Delight

THE underwater sequence in *Adventure Quest* needs a careful and systematic approach or serious trouble will be stored up for later on. So the first set of moves is designed to keep future problems at bay.

Starting at the gravel beach where everything has been washed up you need to take three items – the bag, the fishing net and, always leave it till last, the lung-fish. Now get in to the water – described as a quiet pool.

We are seeking an underwater source of illumination – taking the lamp underwater simply puts it out. The moves required are north twice, then west – the seaweed is the place to head for if the shark comes along – and then west twice more into the underwater church. Here a luminous jelly-fish floats serenely and, provided you have the net, it can be taken.

Our next task is to deal with an acquisitive octopus. Move east three times, then north and down into the deep dark trench – which is where the jelly-fish is required – and then east where you should find yourself just outside an underwater cave.

In you go to confront the octopus: The multi-armed monster will begin to grab your precious possessions – but he starts on the bag of wind first, and gets blown away permanently. This is just as well, because the cave turns out to contain the fourth, and last, of those mysterious white dots.

Drop the net and jelly-fish in the trench just outside the cave, then go up, west, south, east to the water weed and then south twice more to the quiet pool. It's time now to begin ferrying everything from the beach across the lake to the other side.

It doesn't matter very much in which order things are taken as long as the lamp goes on the first trip. Turn it off first, though: The simplest input is *off lamp. From the quiet pool the moves are three north, two west and then out.*

You will emerge into darkness, so do your lung-fish drill and then light the lamp. A cave will be revealed, and two entrances: One is a massive door which is rusted shut, the other is a smaller entrance to the east – but it is distinguished by a black (not white) spot, the first we have encountered.

Re-entering the water is slightly complicated by the fact that, if you type *In* the parser thinks you want to go through the door which is rusted shut. You need *Down* to get back into the water so as to retrace your steps to the gravel beach.

As soon as you have everything across the lake, oil the door, take the lamp, empty bottle, the talisman and – above all – the lung-fish then SAVE your position. We are about to do something experimental for a bit of a laugh. Go east – through the black spot entrance – and this will land you back in the brick building at the beginning of the adventure, and so the significance of the coloured spots is revealed.

Black indicates a teleportation transmitter and the white spot a receiver. This can be useful if you have left something behind in the early stages of the adventure.

In the building fill the bottle with water – just in case – and then make your way across the desert and up the mountain to the cave. Throw the medallion, lamp and bottle into the water and then go into the water yourself.

You'll get swept along, but don't fret about the lung-fish until you come to the series of rapids. You'll be able to climb up here to a ledge: Get yourself into underwater breathing mode and go back down.

When you get to the gravel beach, collect everything up and make your way across the lake to the unrusted (but still locked) door. And there we'll leave things for the moment.

To be continued

Over the years Barbara Gibb has provided us with a number of solutions to different adventures, and I'm particularly grateful for the one to **Castle Blackstar** because I couldn't get this game to run on my BBC Micro, and yet I've had an awful lot of letters asking for help.

So let's go off exploring: We start off in a valley – which is also the place where you end up if resurrection is needed. A road west leads to the Castle, and all other directions lead to woodland. Hidden in the woods are three important locations: The gingerbread cottage, a tunnel grating, only openable from the other side, and a temple where treasures can be cleansed and stored.

From the valley go west to a dusty road, read message and continue west to the front of the castle and the first chaining puzzle: Finding the means to lower the drawbridge and enter the castle.

Move south and take bow then go west and north to the location described as *Behind castle (north)* where you should find an arrow. Once you have taken the arrow, proceed east and then south back to where the

ELITE TIPS

if you want – the rest of you can insult me like my family: As long as you have something interesting to say it will appear in this column.

Stephen has a tip for beginners coming across ships with ECM. Immediately lock a missile on it, and if they launch a missile, then fire your own. The enemy will then use ECM to destroy your missile and destroys their own into the bargain. Hatter's hint: Try destroying the enemy missile with your laser first. A kill in this way gives a real boost in confidence.

When your front screen is full of debris from battered baddies, switch viewscreens for a moment: The front screen should now be clear and you can continue the slaughter unimpeded. Beware Pythons in Anarchy systems, says Stephen, as they can imitate Police behaviour – and vice-versa: You can end up slightly dead as a consequence.

Hatter's hint: *Everything I encounter in an Anarchy system ends up extremely dead – it just seems to take longer if Police pester one.*

Stephen has some questions, too. First: Where in Galaxy Four do Anacondas occur? Answer: Same as anywhere else, so far as I know – in other words, at random.

Second: What is the *amusing sequence reminiscent of Star Wars* in the loading sequence? All he gets is a drunken Krait. Answer: You need a Master or 6502 Second Processor to see it, I'm afraid.

Third: How many kills make a Right on Commander!? Answer: 256. How many of these to Deadly status? Answer: I forget (a lot) and then as many again to Elite – it's a hard old world out there, friends.

Last: Do cargo canisters, alloys and asteroid chunks count as kills? Answer: Yes for the first two, about asteroids I am ignorant.

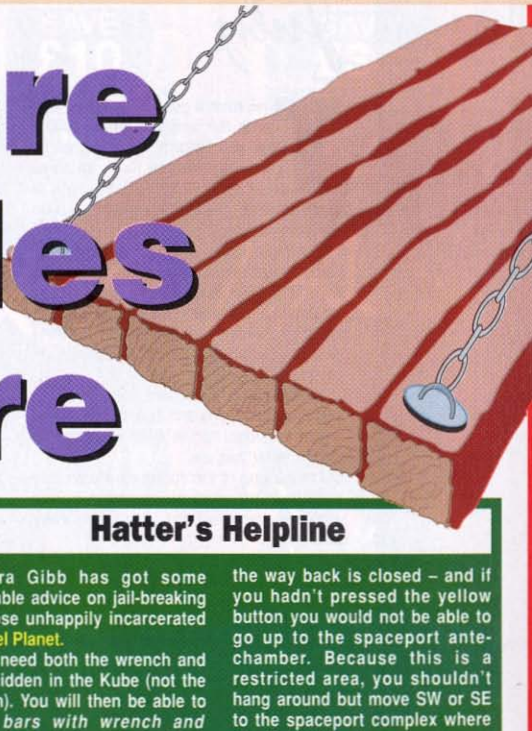
Commander Troll has some high speed tips for other Elitists. Many of you know that the game speeds up if you select f6.

Well, Troll suggests a wheeze that improves things even further – so long as you don't mind some close encounters of the Thargoid kind.

Force your way into Witch Space (Pause, Ctrl+X, Unpause, H + Ctrl+X), and hammer the Thargoids. On return to Normal Space, f6 will produce an even greater speed-up.

Jumping to the Safe Zone should now only be a matter of three or four seconds and – provided you are not directly behind the planet in relation to the Space Station docking takes only about 10 seconds via your Docking Computer. Speeding up also reduces the time needed to recharge batteries and lower laser temperature – useful in combat.

Where Eagles Scare



drawbridge is. *Fire arrow* and the drawbridge will come crashing down.

Now go west to the base of the portcullis and then up, north, down and south to the archway. One move southeast from here is the equipment room. *Turn Wheel* raises the portcullis and now you will be able to enter and leave the castle without fuss. Finally, take the bar.

Next go west to the southeast part of the courtyard and enter the kitchen before going up to a storeroom where you should *turn wheel*. While nothing appears to happen, it actually lowers the chandelier in the dining room.

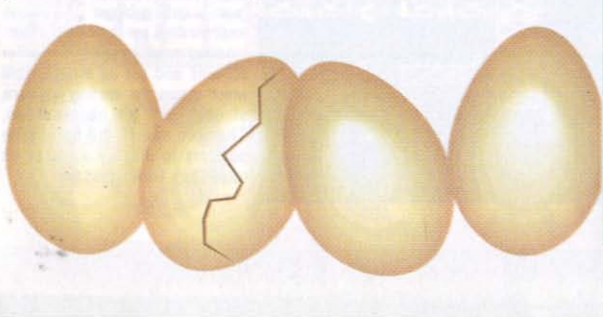
Now take the rope and go back down to the kitchen and take the flour before going west to the dining room. Enter *Up* to swing on the chandelier and then jump to the gallery. Take the violin and then tie rope so that you can get back down again.

Next moves are west to the south tower entrance, up, up and north to the aviary where eagles are guarding their eggs. *Play violin* will frighten them off – and now you can *Take eggs*. The bow can now be discarded as it is no longer needed.

Move north to the barracks and then down to the armoury. *Take knife, examine knife and read runes* will tell you that it has a name: Smaug's Bane. This tells us something about its likely use.

Finally, go north to the north tower entrance and then exit to the northwest part of the courtyard. From here go southeast and enter the stables where you can find and take a lamp and some keys. And that's where we'll leave things for the moment.

More next time.



Hatter's Helpline

Barbara Gibb has got some invaluable advice on jail-breaking for those unhappily incarcerated in Rebel Planet.

You need both the wrench and laser hidden in the Kube (not the Lincom). You will then be able to *Bend bars with wrench and activate laser*. Now you can *Climb through hole and kill policer.*

You *must Deactivate Laser and Drop Laser into Kube* then *Examine Desk*. There are three buttons – red, yellow and blue. Avoid the red one (it's an alarm) but press the yellow one (nothing will appear to happen) and then the blue one to reveal a passage.

Once you enter the passage, the way back is closed – and if you hadn't pressed the yellow button you would not be able to go up to the spaceport ante-chamber. Because this is a restricted area, you shouldn't hang around but move SW or SE to the spaceport complex where Caydia is docked.

Barbara's final comment is that the Kube is a storage container and so you can Drop (object) into Kube or Take it from Kube as needed. The Lincom is the operating system for opening and closing the hatches, and telling you the current energy level, warning you when HCAP is needed.

Diary of

As more and more refinements are made, memory becomes short and Steve Parkinson makes a break for the finishing line

July

THE month got swiftly under way with the inclusion of the SAD – Seek and Destroy – homing mine. It looking nothing like a mine to start with, instead bearing a startling resemblance to a girder – I'll do the graphic later.

Didn't take too long to get this knocked up, being a relatively simple routine. Setting the mine in motion is easy, as I just have to increment or decrement the X and Y co-ordinates by an amount determined by the mine routine. Its direction simply depends on where it is in relation to you.

Added a little inertia, which improved the performance no end and also made it a little easier to dodge, as the mine is able to go slightly faster than you.

I'm thinking of incorporating a patrolling mine launcher which glides gracefully and aimlessly around launching its missiles every so often.

The next task was to design some sort of logo for the main screen. This posed a small problem – memory. Hyperball used a predefined graphic for its logo, but that program was a little less complex.

Wrote a small piece of code to draw the logo on the screen by reading the directions – up, down, left, right and colour – from a data table, to get the idea of what it is I want.

Decided that this prototype was good enough to use in the game, and its size in memory was peanuts compared to what it might have been if I'd saved the whole thing.

The character set for the scrolling message still posed a problem – &0780 bytes worth. If I could draw the characters as I drew the logo I'd be happy.

Mentioned the problem to Phil, who suggested that I fractalise the set and compress it into a simple rule. Won't be asking Phil for any more ideas!

Will definitely include a scrolling message of some sort in all the versions as long as it doesn't jeopardise the game and its playability.

Added a few bars to the menu and generally made it look like a menu screen! The menu was finished with the addition of a high score table and the place allocation routine for the score.

Went one step further by putting a starting sequence at the beginning of the game routine. This is the bit when you accelerate down the runway and are sent back in time – I hope Robert Zemekis isn't reading this.

Used a parallax scroller to shift little pixels from right to left. The result was a wagon wheel effect where, at a certain speed the dots appear to be going backwards. Perhaps the dots are too close to one another.

Avoided the particular speeds, at which this phenomenon occurs. The entry sequence as with the rest of the game, is done relative to the ship.

Need more memory. My Master's got 128k somewhere and I want to assemble to it. Rang Steve Turnbull. He broke it to me gently that it's not addressable on a direct basis.

What! You can't assemble to it? It acts as a ram disc which you can write to and read from in lumps. Changed the assembling technique slightly, which made use of this.

Wrote an explosion routine for the aliens. The basic idea was to explode the graphic in its four quadrants. Did it do this when I ran through it? No. Fortunately I'm accustomed to making a quick backup before I run any new routines.

A couple of cups of tea and a few more grey hairs later it worked. Followed closely by a disc crash. I rescued what I could and invested in a pack of Sony discs. Thanks to my trusty archives I didn't lose any data at all – this time.

Designed a new layout for the control towers by scrapping the first feeble excuse for a screen and putting in four. I'm really impressed at the speed with which the screens appear.

Put in some missiles which – depending on the screen number – accelerate across the screen although the screen allocation will be done later. Problem: Phil says they look like fish.

Wrote a sprite routine to place a 16x16 pixel graphic on the screen and to give it pixel resolution on the vertical axis. Worked out a super fast method of doing this too. Wish I'd thought of that for Hyperball.

Progressed to putting in two bouncing balls which used the same routine. They even bounce on each other. Three sprites seem to be the limit on glitch-free gameplay.

One of the balls decided to bounce on some Basic memory as well as another ball and flew off the top of the screen. Went to ram and asked for my ball back.

Shaded the balls slightly to give them a rounded look. As they looked so cute, I restyled the ships with a toy town feel. Lovely. Phil says they now look like cartoon flies.

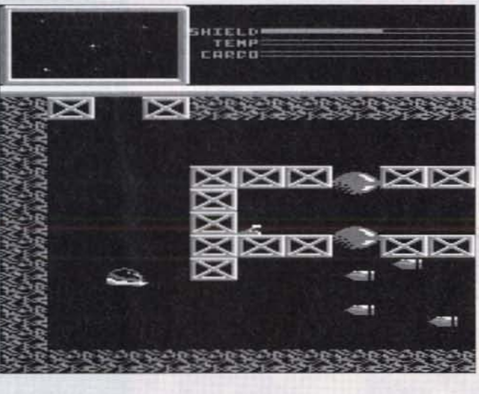
I take a defensive and domineering posture. Now look Phil ... Finished the day by giving the ship full control via the keyboard and deciding that the missiles do indeed look like fish. Anything for a quiet life.

Tried to fire up the dual disc drive this morning, ready for backups. Played hunt the mains socket – a great idea for a computer game. Took my time to make doubly sure that I didn't unplug my video by mistake, to save me having to re-set the clock.

Having done the backups and re-set the clock on my video, I set about adding the collision detection to the ship. This is done off-screen which gives me the ability to include invisible blocks.

The only on-screen detection is used by the balls when they look around for something to bounce on. The control tower is getting quite large, which means that the program is getting bigger. The planet-routine's days are numbered, I fear.

Added more detail to the other screens and set up a data table which stores the starting positions of each ball for each screen. Changed one of the ball sprite pointers to display a girder on screen two, Looks good too!



a game

August / September

My deadline is now set for the game. Not due to any software company, but I've just got confirmation of a place to lodge while I partake of a programming degree in Plymouth. I've got a month.

Finished off the control tower by incorporating the destruct sequences. This decided how the tower is to be finally destroyed. There won't be any shooting necessary as the game isn't really a shoot-'em-up – it was never intended to be.

Instead there are two stages to the destruct sequence. The first involves getting to screen four and landing on a plunger which moves down once you have touched it.

This takes you into stage two which is a bit of a puzzle game. You're shown an arrangement of about 10 objects – circles, squares and triangles of various colours. You have to match this by swapping shapes around at the bottom of the screen.

Added the all-important countdown timer element. If it reaches zero you go back to the control tower and the destruct sequence is aborted. If the puzzle is completed in time the tower will be destroyed once you have vacated it.

Changed the colours to a red-alert status for when the destruct sequence has been initialised. The control tower is finished. Before celebrating I archived the disc – twice.

Re-wrote the old mine routine because it was a little longwinded, Ended up with a piece of code I could swear is longer, but I think quicker.

Decided that the old radar routine was extremely inefficient and set about designing a new system, bearing in mind the re-written mine routine.

Wished I hadn't. I couldn't get the thing to work, but eventually found a few minor routines which made use of this radar but weren't working with the new code.

More amendments were necessary before I had the new, improved radar. It was worth it, as it is now more versatile and can incorporate any radar position I wish to define. Brilliant.

The most difficult bit was keeping the wrap around of the radar in sync with the screen.

Thought more about the idea of incorporating a patrolling mine launcher. It will drift in a particular direction and randomly launch homing mines. The movement was very simplistic – up and right. Even though it sounds primitive and unsophisticated, it will eventually cover most points in the æther.

If the mine launcher appears onscreen for any length of time it will release a mine. This means that I need a mine graphic. I expect that no matter how hard I try it will still look like a fish. I'll give it a go though.

Having come up with a suitable design, I decided that it was about time I added some levels. A good brain bash with Rowland soon gave birth to some new ideas.

Strange too, as all the ideas sprang from absolutely nowhere and had nothing to do with what we were talking about. That's one of the marvels of brainstorming. Some of the ideas fit nicely with the element of strategy which has been forming slowly over the months.

The rocks still have to be heated up and rammed in order to gain Arionite but the addition of more girders and transporters makes the gameplay far from easy.

Some rocks could be hidden in a mass of girders which can't be accessed without the use of a transporter. Well they can, you just won't have much of a shield left afterwards.

The control towers, once destroyed, will remove two objects from the universe, which could make life a lot easier. But doing things in the right order is essential.

Another addition saw the creation of Centralisers which, when hit, send your craft straight back to the centre of the universe.

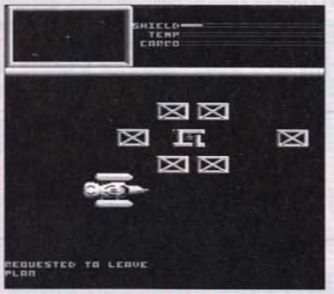
Disguised some transporters as rocks, which only lose their disguise when they have been drained of Arionite and a Changer has been activated. The latter is hidden away and is brought into play by ramming it.

Set about adding more transporters. This is not going to be easy. There were plenty of quirks I would never have dreamed of to keep me going for a couple of days.

The routine under construction uses a look-up table which gives you the destination coordinates for every transporter on each level.

Organising this was a major headache. Found that because the ship can hit a transporter from any angle, a routine was needed to centre the ship over the transporter before you are transferred.

This centralisation is not shown, as it would be very messy indeed, but it doesn't need to be. It's only the co-ordinates I'm changing, and providing I don't load these into the sprite print routine the centralised position won't be shown. I need a cup of tea.



REQUESTED TO LEAVE
PLAN

After a small struggle with some crazy typing errors, which unfortunately weren't quite obvious enough to the assembler, the routine ran beautifully. Very quickly, too. If the ship hit the transporter at full speed, it would instantly jump to the new location and carry on in the same direction without a glitch. Very confusing.

Made the ship halt as soon as it arrived at a new location to prevent massive shield losses as you plough through a girder.

Designed some levels to make use of these new creations. They start off very easily with nothing but a few rocks. Inserted a bit of code to check whether a level has been completed. The player has to ram a small nebula type ring which is slap-bang in the centre of the radar.

If enough Arionite has been collected and all of the transporters used, you go to the next level. Only did a few levels. I can see that it's going to take a while to work out some strategic plans for all the different layouts. At the same time, they've got to be playable.

The planet routine has been scrapped due to lack of memory, which is a real shame, but I'd rather the game be enjoyable than cramped and compromised. A pity about the super smooth landscape though – I must find an excuse to use it sometime.

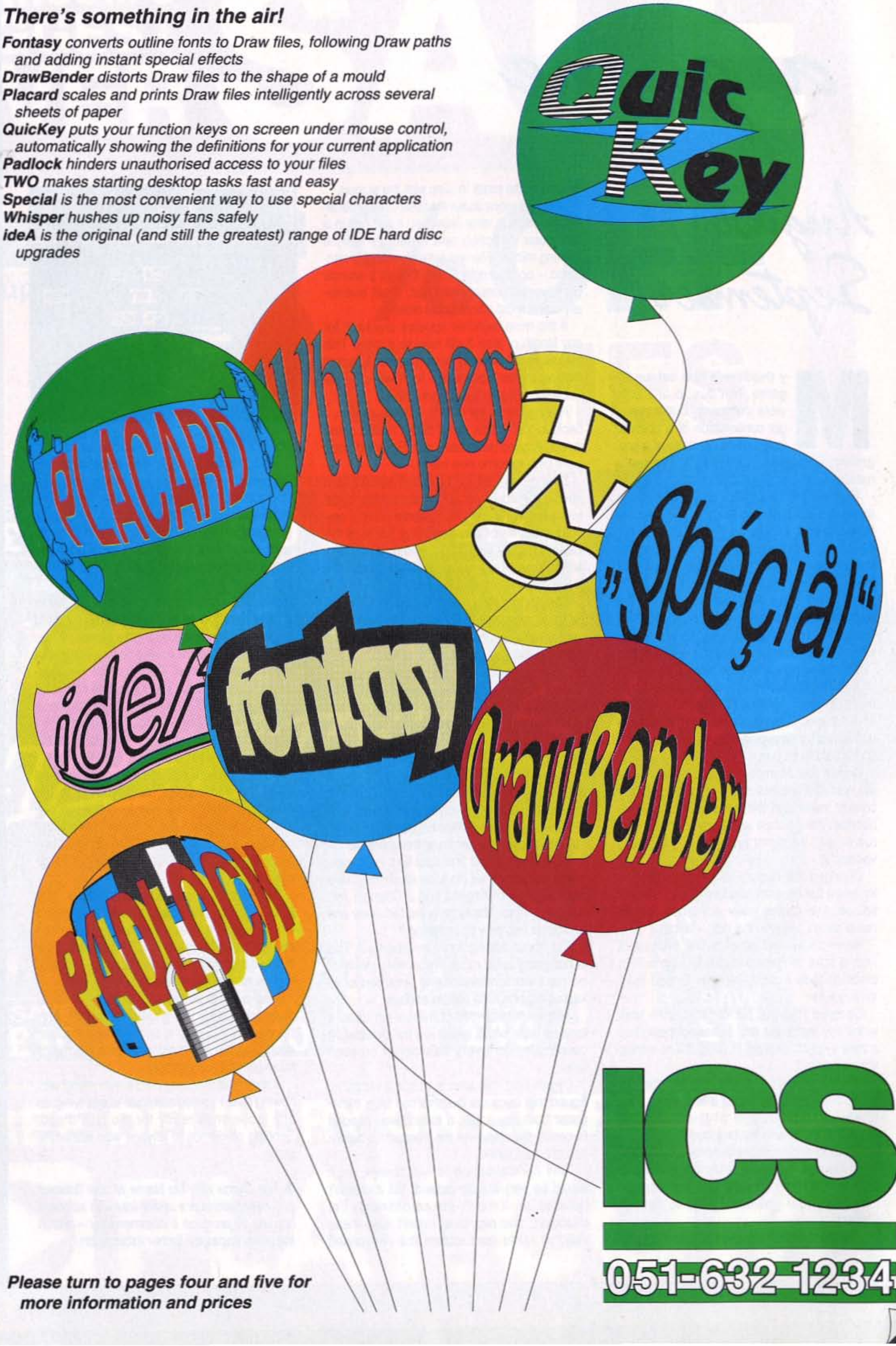
Had a go at combining the control tower sequence with the game. It wasn't very happy there. Spent a while sifting through each program and making minor adjustments for maximum compatibility.

It wasn't all that long before everything was flowing and I immediately set about tying up any loose ends ready for the bit I dread: Sending off demos to anyone who wants the game.

- *The Game with No Name is now finished and negotiations are under way with software houses to produce it commercially – watch the news pages for further information.*

There's something in the air!

Fontasy *converts outline fonts to Draw files, following Draw paths and adding instant special effects*
DrawBender *distorts Draw files to the shape of a mould*
Placard *scales and prints Draw files intelligently across several sheets of paper*
QuicKey *puts your function keys on screen under mouse control, automatically showing the definitions for your current application*
Padlock *hinders unauthorised access to your files*
TWO *makes starting desktop tasks fast and easy*
Special *is the most convenient way to use special characters*
Whisper *hushes up noisy fans safely*
ideA *is the original (and still the greatest) range of IDE hard disc upgrades*



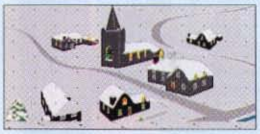
Please turn to pages four and five for more information and prices

ICS

051-632-1234

Update

Christmas art



SEASONAL packages are a good way to involve the computer in a variety of projects and Attainment Targets over the run-up to Christmas. Sherston Software's (0666 840433) Christmas Allsorts is a collection of useful and well-drawn clip-art and activities for the Archimedes.

Priced at £16.95 the three disc pack comes with four activity cards showing you how to create a Christmas card, advent calender and a nativity scene as well as how to edit the clip-art pictures all using !Draw. There is even an extremely useful easy guide to the main menu options of !Draw thrown in too.

The booklet is full of useful advice for !Draw users which won't date, as well as printed versions of the scenes and objects on the discs.

Not to be outdone, ESM (0223 65445) have a Christmas Theme Pack with over 310 festive pictures plus design ideas for cards, calenders and displays. The £35 pack is for use with ESM's Desktop Folio but equally compatible with other Archimedes programs and aims to stimulate and encourage creative writing and design for all ages.

For Desktop Folio users there is some ready-to-use stationery which means that almost instant designs can be created with your own words. There is also a binder of ideas with practical advice on how to use the pictures and stationery listing useful software and fonts.

Ready, steady, Bett

JANUARY sees the Bett show in its usual Barbican venue. Software houses are now beginning to announce their new products which will have their first airing there.

After two years of close collaboration with Tullie House Museum in Carlisle, Cambridgeshire Software House (0480 67945) will be demonstrating Frontier 2000. The program is designed for use with eight-year-olds to adults. Based on the history and environment of part of the English/Scottish border, subjects covered include Romans, Bonnie Prince Charlie, Hadrian's Wall and the Reiving families.

An environmental trail follows the River Eden and the Solway Firth, illustrated with digitised pictures and text. To complement Frontier 2000 is a resource pack including video, audio cassette, information books and even a genuine piece of Roman timber.

Maths help

CARVIC Manufacturing (0309 72793) have launched a new version of !DrawAid 1.02. Aimed primarily at science and maths teachers, it allows Basic programmers to produce !Draw files from their own programs – without any knowledge of the detailed structure. Fully Risc OS compatible it allows you to create complex mathematical files not possible with the standard !Draw and go on to produce sequences of changing files.

The updated version has added more standard objects – PROC-frame and PROC-ring – and path procedures flip and mirror as well as enhancing the grouping procedure and it still costs just £10.

Logo in control

THE National Curriculum has given an extra lease of life to that perennial language Logo. Producers of one of the original Logos for Acorn machines, Longman Logotron (0223 425558) have now got a new implementation, Control Logo.

Priced at £22 this Archimedes version adds a series of new primitives to Logo allowing more control and monitoring of external devices. The control language itself is identical to the original BBC Micro version but additional features exploit the speed of the Archimedes and allow the power setting on outputs to be regulated.

However, as the software follows the BBC conventions connecting the buffer box to the computer – via the user and printer ports – an additional adaptor for the printer lead connection is needed. These are available from Phobox Electronics (0305 853767).

Exploring CAD

ANYONE involved or interested in Computer Aided Design will realise that a powerful computer needs the right tools to produce the best results. If you'd like to know more about CAD, LinCad Primer, £35 from Linear Graphics (0686 629292), will introduce you to the concepts and enable teacher or pupils to experiment with a comprehensive package.

Linear Graphics have also recently released the Risc OS version priced at £175. In addition to the powerful features of the original there are now a number of enhancements.

As well as allowing Draw files to be loaded directly into the work area, Bezier curves can be drawn in addition to the existing spline function. Outline fonts can be imported too and forced to follow your designs and automatic isometric extrusion means that you can now draw a frontal view and extrude the shape left to right, or right to left to a set depth. You can buy an additional Tutorial Pack to give you classroom support for just £35.

For those involved in micro-electronics design the traditional tape or transfer methods of producing printed circuit board artwork can be limiting. LinTrack allows designers to create the artwork on a BBC or Archimedes screen.

Both versions of the software cost £112 each with the circuit layout made up of a number of items, tracks, pads, components and labels. Library design blocks can also be used. Once the initial design has been made editing commands can be accessed to correct errors or make modifications.

CD-ROM demo

CD-ROMS are proving their worth in schools and Acorn and Hitachi are distributing a CD-Rom demonstration disc including software and other material running under Risc OS. This means that for the first time Dos and Risc OS material will be on the same disc and the PC programs will of course be accessible using the PC emulator.

Sensitive touch

NORTH WEST SEMERC (061-627 4469) are renown for their programs for mixed ability children and their latest hardware release continues this theme. Similar to the concept keyboard, the Oldham SEMERC Overlay Keyboard is an input device for the BBC B and Master.

Touch sensitive, this A3 keypad has 128 programmable keys. By placing an overlay sheet on top of the keyboard children of all ages and abilities can use a whole host of programs from colour matching to English and science projects all chosen from the existing sources of overlay keyboard software.

A single switch has been added to the initial design to allow children with physical or profound learning difficulties to operate compatible software by pressing this rather than using the overlay keyboard. The complete package is available for £199.95

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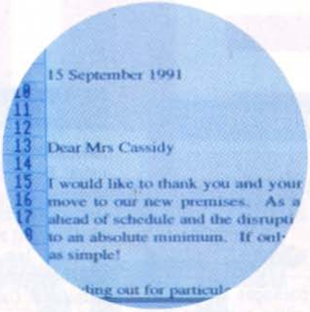

15 September 1991

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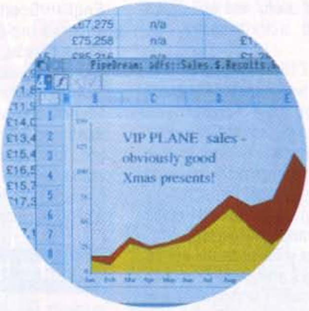
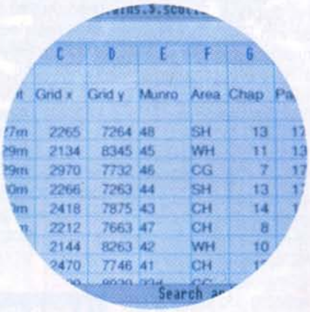


VIP PLANE sales - obviously good Xmas presents!



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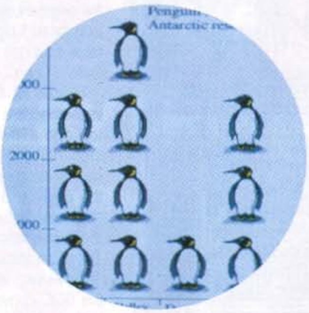
2212	7663	47	CH	8
2144	8263	42	WH	10
2470	7746	41	CH	



Artistic licence

Frank Jukes puts another new art package through the toughest test of all – the classroom

Product: PrimeArt
Price: £79.95
Supplier: Minerva, Minerva House, Baring Crescent, Exeter, Devon, EX1 1TL
Tel: 0392 437756
Requirements: Risc OS

FOR what seems to have been a long time now, users and potential users of the Archimedes range have muttered darkly about the availability of software.

Acorn's recent response has been to quote the number of titles in its catalogue, but even so many have not been convinced of the depth of software support.

Now over the past few weeks there seems to have been a noticeable quickening in the quantity of good quality software coming on to the market, much of it aimed directly at the primary school market.

PrimeArt, a 256-colour art package from Minerva, is an example. Released at almost the same time as Topologika's Imagine – which I reviewed in the October issue of ***The Micro User*** – PrimeArt shares many of Imagine's features. It also has some special features of its own and a noticeably different style. Unfortunately it costs more than twice as much.

Like Imagine, PrimeArt does not run inside a window but takes over the whole screen. Unlike Imagine it installs itself on the icon bar enabling files to be dragged on to itself for loading. Once the program is running all other Desktop activities are suspended, but they may be returned to at any time. On return to PrimeArt the picture is intact and work on it can continue.

Both programs are menu driven. The menus used by Imagine rely on highlighted text bars for choices to be made, while PrimeArt's menus use icons.

Although the icons are an improvement, the primary Toolbox menu uses ones which are much too small and too numerous. With more than 50 available the choice can be quite daunting.

It is possible to customise the Toolbox and the program by removing or re-arranging icons, but this does not really solve the problem.

A solution is not far away, however. Clicking menu anywhere over the Toolbox produces the main Drawing Menu which could replace the Toolbox as an alternative access point to the tools.

With only six choices to be made, and with larger icons, this menu is easier to use, more manageable and less likely to scare young users. Such a change would also provide an opportunity to redesign the colour selection system. At present it is contained within the Toolbox and consists of two vertical columns of the eight primary, secondary and tertiary colours.

Further colours are created by clicking on two of the basic colours, one from each column. Clicking over one of the newly-created colours selects it.

I think this is too much to ask of primary age children. Their experience of colour mixing is very limited, and to expect them to know which to mix to produce a particular colour or shade they may have in mind is expecting a great deal of them.

I much prefer Imagine's shade card system, which allows users to see the colour they require and then select it by clicking.

Once the main menu is on, screen choices may be made by clicking or by using keyboard shortcuts shown on the menu in blue.

These choices lead to sub-menus for drawing, sprites, text, disc filing and printing and also provide access to the Desktop. The Drawing Menu leads to another series of sub-menus which provides a whole range of colouring options, as well as the construction of straight line and curved shapes.

Various flood fill options are also provided, as is the ability to magnify part of the screen for individual pixel editing.

Some useful and interesting features from the Paint sub-menu are mix, cover and wash and from the Flood-fill menu, the round, horizontal and vertical fills.

Mix allows a selected colour to be mixed with another one which has already been painted onto the screen. This means that when used with black and white, for example, highlights or shadows can be added directly to the partially finished picture.

Cover works in a similar way, but allows the brightness of the brush colour to be modified in accordance with the colour it is overpainting.

Wash gives a similar effect to a traditional watercolour wash, blending adjacent colours to produce a very pleasing result. Some of the the flood fills give beautiful results. The round fill is made up of blended circular bands of colour or shade from the colour selection bar.

The effect is something like that produced when light falls on a snooker ball, but instead of variations in brightness there are variations in colour. The horizontal and vertical fills give a similar effect with the banding running horizontally or vertically.

Text seems easier to use on PrimeArt than Imagine. The program can use the system font or outline fonts, and a full list of those available can be easily scrolled through before selecting one by clicking over its highlighted name.

The colour and size of the font are also selected simply, and the text entered by keying it in. As the mouse is moved around the screen the text follows it until the mouse is clicked or the Return key is pressed.

The disc filing menu is quick and easy to use. But the loading and saving process is a little more fiddly than Imagine's. Pictures and sprites can be saved in a compressed form and re-loaded later.

Unless told otherwise, the program saves pictures into the PrimeArt directory. This is a sensible arrangement as it means that they can easily be found and the difficulties of dragging icons into directories are avoided.

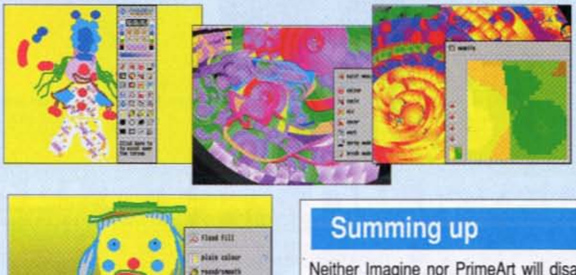
Default names for sprites and pictures are available but using them should be discouraged unless you are willing to take the risk of overwriting pictures saved earlier using the same default name.

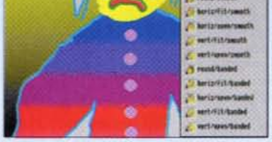
It is possible to load sprites from !Paint into PrimeArt but they do need alteration in !Draw and !Paint first.

Once finished, printing a picture could not be simpler. Pressing the Print key pops up a menu with choices to print the picture in one of four sizes via an Archimedes printer driver.

Most interesting option is poster, which produces a picture covering four sheets of paper.

Less on-screen help is provided with PrimeArt than with Imagine ,but the manual – with its Tutorial section and detailed worked example – meets the challenge.





Summing up

Neither Imagine nor PrimeArt will disappoint. Both will repay close inspection and be more than adequate for the needs of most primary schools. Choosing between them is difficult – it always is when quality is high.

When features are replicated and when the individual programs' own particular features are equally useful, the problems of choosing are compounded even further.

Overall, and taking the price into consideration, I'd have to opt for Imagine.

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Product: Fun and Games
Price: £19.95
Supplier: HS Software, 56
Hendrefoilan Avenue, Sketty,
Swansea SA2 7NB.
Tel: 0792 204519
Requirements: Risc OS

IS IT just me, or has the advent of the Archimedes done something to educational software? Yes, I know it's all very wonderful and multitasking, but doesn't it seem to have got a little serious?

Now like a breath of fresh air in comes Fun And Games from Stuart Forbes at H.S. Software.

There are three games in the pack, all practising basic skills at a variety of levels and all containing a good deal of fun.

Let's start with **Tidy**. The skills we're looking at here are very basic and for quite young children. We see Emma's bedroom which has a bed, bin, chair, shelves and so on as well as a number of objects. We need to understand on, in, under, behind, and in front of.

As soon as you click on start you get a speech bubble which commands, *Emma, tidy your room at once!* You also get the speech as a sound sample something like a pantomime dame.

Now Emma takes over. She gives you instructions like *Put the clock on the shelf* and, using the mouse to control Emma's parrot, you do just that.

The command appears in a speech bubble but is also sampled in a lovely South Wales accent. What is so impressive about the speech is that it works in every combination.

The words are obviously sampled separately but they run together very naturally – British Telecom could take a lesson from this package.

Once you and the parrot have tidied Emma's room for her you get a nice little tune to which Emma bounces up and down.

There's plenty of options to set depending on the ability of your child. You decide which of the prepositions will be used, whether the additional adjectives long, short, big and small will be used and the number of errors allowed. You could get quite a lot of use out of this with a pre-school child.

Next is **Burger Boy**, where you are in charge of Helpful Herbert, a neat looking purveyor of the Big Mac. The top part of the screen contains shelves with various goodies to be sold to the unsuspecting public.

Click on go and your first punter arrives asking, in a voice that's pure Arthur Mullard, for a huge range of items.

The number and range of the orders is under your control, as is the option to display them as pictures or text, and you use the mouse to send Herbert bouncing up to the shelves to fill the order.

At higher skill levels you have to add up the cost of the order and enter it into the till – perhaps a little advanced.

Then the really good bit, our customer eats and drinks, very loudly – I really wish I'd been there when the sound samples were made. He finishes with a loud belch and a "Pardon me".

Because of the control you have over the content of the game this one will be of use to children in a wide age range looking at skills from sequencing – you must get the items in the right order – to fairly complex addition of money.

Coconuts loads to a pretty funky version of the old music hall favourite. There are four trees each bearing different fruit and along the base of the screen is a sequence of fruit.

Your mission is to instruct Helpful Herbert to copy the sequence. Helpful is guided among the trees when you click on the fruit you want, then you point to the place in the sequence you want it to go.

Unlike the other games, this one works on a time limit, each mistake losing you time. As Helpful puts the fruit down, assuming it's in the right place, he tells you what it is. Once you have the sequence complete he backs away and tells the fruit to *Get on down* which it does. All the games respond to mistakes in a low key way. Despite all the whistles and bells the programs don't fall into the trap of making it at least as much fun to get it wrong.

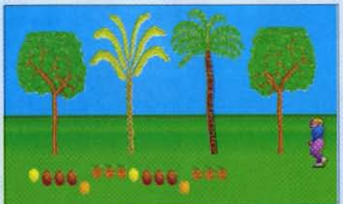
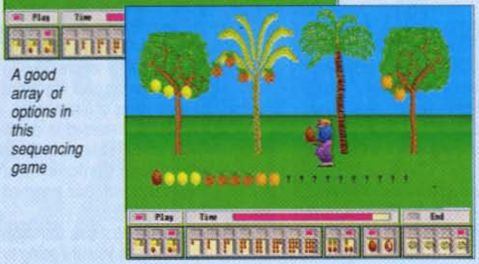
Also Tidy has the facility to turn the sound off and work from text on the screen, which has the two-fold advantage of adding a difficulty level and making the game suitable for classroom use.

This facility isn't offered in the other two games, which seems an odd omission, but typing *SPEAKER OFF before loading them will do the trick.

From an educational point of view the package is not earth shattering, it is what is sometimes called opaque software.

No doubt there will be a view expressed among the higher-ups in CAL that this is drill and practice, and as such has no place in school.

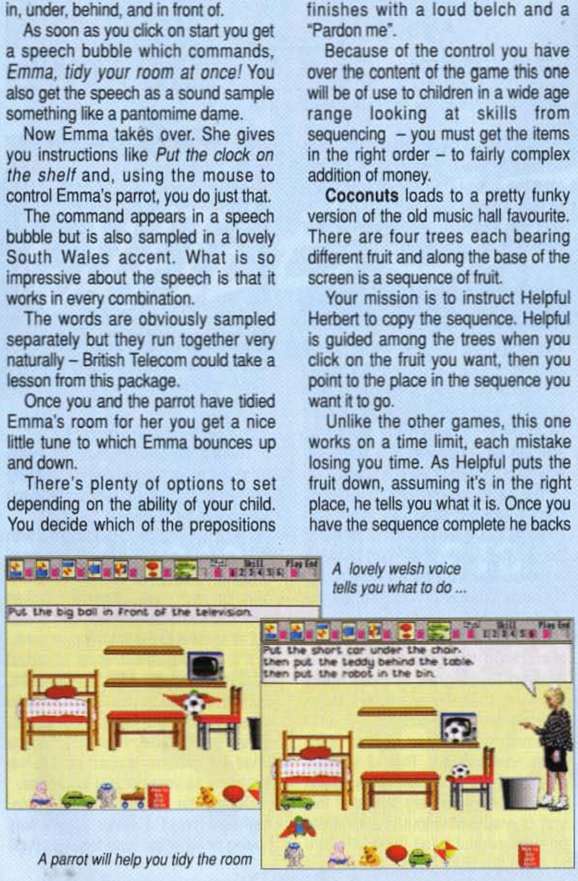
Maybe they're right, there are more interesting things you can do with the machine – but few of them are anything like as much fun.

A good array of options in this sequencing game

Colourful graphics make this fun to play

Making the most of sampling



Put the big ball in front of the television.

Put the short car under the chair.
then put the teddy behind the table.
then put the robot in the bin.

A lovely welsh voice tells you what to do ...

A parrot will help you tidy the room

Summing up

Certainly this sort of thing is a godsend to teachers in special education or dealing with withdrawal groups in mainstream schools where children have specific skills problems that have to be drilled and practised.

Quite incidentally it's also a good introduction to using the mouse, though there was some confusion with Tidy – experienced children wanted to *drag* the parrot which was seen by the software as an error.

In the end these games must be aimed at home users. They are very moderately priced, reasonably educational and will keep children aged between about 4 and 10 amused for quite a while.

If you have younger children you will probably find that this is the sort of thing you can bring out again in a year or two and try at a higher level.

It's all in planning

Product: NCPlanner
Price: £25.00
Product: NCBase
Price: £25.00
Supplier: New Era Software, 204 High Street, Woodville, Burton-on-Trent PE11 7DT.
Tel: 0283 812818
Requirements: Risc OS

NCPLANNER and NCBase are intended to help teachers with their topic planning, covering areas of the National Curriculum and record keeping.

NCPlanner provides keyword searching of the National Curriculum including Mathematics, English, Science, Technology, History, Geography and Languages, while NCBase stores information about groups of children. It then interacts with files created in NCPlanner to produce graphical representations of what each child has covered.

In addition NCPlanner is able to produce check sheets for teacher assessment – again interacting with NCBase to provide the names of children.

NCPlanner

The point of using a computer to assist with planning is that it should do a lot of the searching and cross-referencing for you, otherwise you might just as easily use a good word processor – or a pen – with the National Curriculum documents by your side. NCPlanner holds only the statements of attainment from the National Curriculum but provides no facility for browsing. What it does provide is keyword searching and the direct entry of attainments entered in the form of, for example, M1.1a which represents Mathematics, Attainment Target 1, Level 1a.

I found the keyword searching of limited help since the realities of most project work and the activities they involve are not really expressed in terms that appear in the National Curriculum statements of attaiment.

What I really felt I wanted to do all the time was to be able to browse through the National Curriculum and click on the attainments that matched the work I was doing.

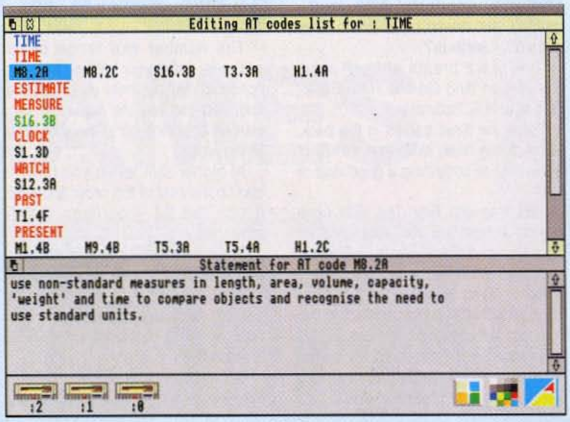
The package is fine if you start with the attainment targets you are going to teach and feed their references in directly from the documents.

It helps considerably if you think about your planning in terms of skills. When I started to plan a topic on Time I entered the usual keywords such as watch, clock and so on as well as the skills to be covered, measure, time, estimate and some ideas such as past and future.

The search found a number of attainment targets I had not realised I was covering.

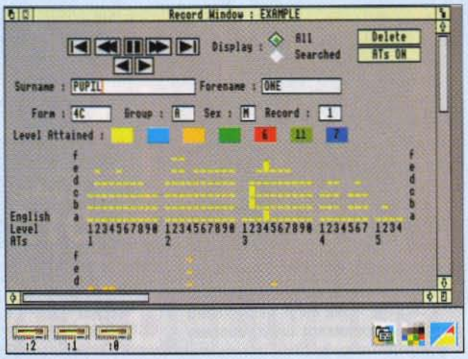
The problem is that we are not using the statements of attainment when we plan our work but the programmes of study. What we need is a data base that will search the *whole* of the National Curriculum rather than just the attainment targets.

The only place where searching attainment targets really works at the moment are in the areas of maths and science where the attainment targets and the programmes of study are broadly similar. I suspect that the only way this problem will be solved will involve using a CD-rom.



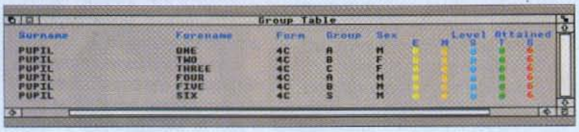
```
Editing AT codes list for : TIME
TIME
TIME
M8.2A      M8.2C      S16.3B     T3.3A      H1.4A
ESTIMATE
MEASURE
S16.3B
CLOCK
S1.3D
WATCH
S12.3A
PAST
T1.4F
PRESENT
M1.4B      M9.4B      T5.3A      T5.4A      H1.2C
Statement for AT code M8.2A
use non-standard measures in length, area, volume, capacity,
'weight' and time to compare objects and recognise the need to
use standard units.
```

NCPlanner showing the results of a search in Time



```
Record Window : EXAMPLE
Display : ◆ All
          ◇ Searched
Delete
ATs ON
Surname : PUPIL          Forename : ONE
Form : 4C   Group : A   Sex : M   Record : 1
Level Attained :                 6   11   7
English
Level     1234567890 1234567890 1234567890 1234567 1234
ATs       1          2          3          4       5
```

NCBase pupil screen shows how the program displays children's progress in graphical form



Group Table

Surname	Forename	Form	Group	Sex	Level Attained E	M	S	T	B
PUPIL	ONE	4C	A	M	●	●	●	●	●
PUPIL	TWO	4C	B	F	●	●	●	●	●
PUPIL	THREE	4C	C	F	●	●	●	●	●
PUPIL	FOUR	4C	A	M	●	●	●	●	●
PUPIL	FIVE	4C	B	M	●	●	●	●	●
PUPIL	SIX	4C	S	M	●	●	●	●	●

NCBase table screen – a quicker way of obtaining hard copy of the information

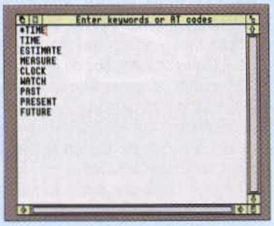
NCBase

This is the data manager where lists of children, classes, groups and a record of their sex is held. Its special feature is that it then interacts with files from NCPlanner to record the work that children have covered in a topic and builds up profiles of work covered.

The database consists of an index card in two sections. The upper part contains the name and class details of the child while the lower part shows a graphical record of the areas of the National Curriculum covered by the child.

Each statement appears initially as a mark on the graph. As data is entered these grow in three steps showing that the work has been covered, tested and passed.

Movement between records is via video-type controls. This all seemed quite nicely implemented although you would need to be very sure that this sort of graphical output is acceptable and meaningful to all those who are subsequently to make use of it.



```
Enter keywords or AT codes
*TIME
TIME
ESTIMATE
MEASURE
CLOCK
WATCH
PAST
PRESENT
FUTURE
```

*NCPlanner at the keyword entry stage. The heading preceeded by a * so that it is not searched for*

There is an alternative option which is to print out a table of results showing the attainment targets gained for each member of the class.

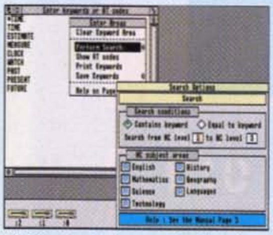
I was never able to get to grips with this aspect of the program since, whatever data I fed into the program, only the last three attainment boxes ever showed any numbers, and it was not at all clear to me what they meant.

It is also possible to enter individual attainment targets into the database, but my version seemed unwilling to accept History and Geography targets, saying that they did not exist. Since I had the documents open next to me this came as something of a surprise.

During the entry of the childrens' names I found a major niggle was having to enter the form for each pupil

the

John Clemence delves into two packages aiming to make teacher's life easier


Enter Keywords or AT codes
*TIME
TIME
ESTIMATE
MEASURE
CLOCK
WATCH
PAST
PRESENT
FUTURE
Enter Areas
Clear Keyword Area
Perform Search
Show AT codes
Print Keywords
Save Keywords
Help on Page
Search Options
Search
Search conditions
Contains keyword
Equal to keyword
Search from NC level 1 to NC level 3
NC subject areas
English
History
Mathematics
Geography
Science
Languages
Technology
Help : See the Manual Page 3

NCPlanner search screen showing the range of documents covered

in a class. Also I found the the size of box needed to enter the group of the child was too small. I could make no use of it at all with the group names that I am using with my class.

Once the personal data is entered children's work is recorded by calling up a planning file and then deciding which attainments are to be applied to the whole class and which will only apply to a selection. You also decide at this stage whether a target has been covered, tested and/or passed.

Printing information about individual pupils requires a printer driver if you wish to present the information in the form of a graph. U

Using a 24pin printer at medium resolution would require you to spend most of a day printing the data for a whole class

Summing up

This package represents a possible way to use Archimedes computers for planning and recording National Curriculum work. The package is economical, but I understand that for a further one off payment of £15.00 you are entitled to all upgrades without further charge.

I feel that the package has not quite been fully developed as yet so, if you do decide to go for this one make sure you have paid for the upgrades as well.

Picture this

A new style in educational software? Shelley Birchenough takes a look at Picture Book and Money Matters

FOR years and years teachers have been trying to tell software houses that the standard computer keyboard can be very confusing for young children and has led to the widespread use of the concept keyboard where teachers can design their own overlays or buy specially written software.

The problem with this system is the price. But the first two releases for the primary and pre-school environment from Triple R – Picture Book and Money Matters – both use a totally new overlay system.

The overlays aren't trying to be a concept keyboard on the cheap but they are a very simple idea which should work, so my class put it to the test,

With Picture Book you can opt not to use the overlays or you can use one of two: A qwerty arrangement or an abcdef listing, both in lower case. As a teacher – or parent – it is up to you to decide which is best for you children, or you can let them decide which they prefer through trial and error.

With Money Matters you need the overlay as it has the words, numbers and pictures of coins in specific places – often over more than one key.

The overlays are simple sheets of plastic which you attach to your machine with velcro. It was nice to see a good amount provided so if you make mistakes you can try again. Instructions are given but it is quite obvious really. There is a replacement scheme should your overlay wear out but Triple R seem very confident that it will last and last.

Picture Book

Moving on to the programs themselves, Picture Book is a collection of four games of the kind usually found in HS Software collections or in the Fun School series. They are single tasking but with the age range targeted this is no bad thing.

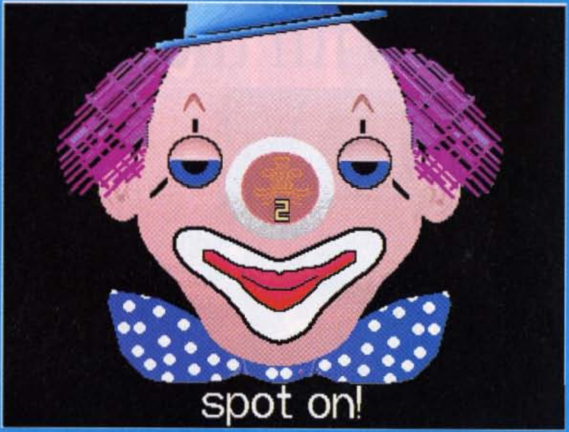
On booting up you are presented with a very colourful menu screen courtesy of Stephen Hallam and Mike Goldberg – cartoonist/graphic artist of Let's Compute fame. By pressing option five you can toggle between qwerty and abcdef options.

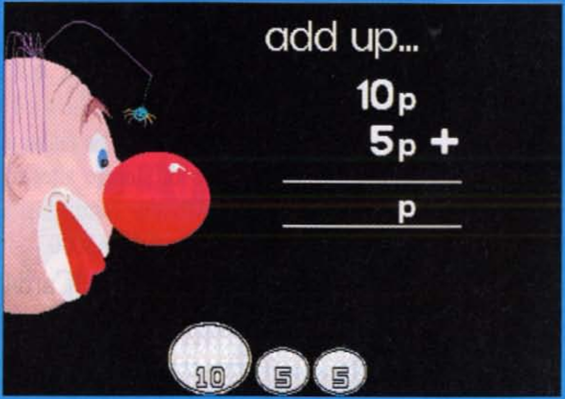
Product: Picture Book
Price: £12.95 (BBC/Electron tape) £14.95 (BBC 5.25ins disc) £15.95 (BBC Master Compact 3.5ins disc) £19.95 (Risc OS)
Supplier: Tripe R, 1 Percy Street, Sheffield S3 8AU.
Tel: 0742 769950
Requirements: All formats

Alphabet Book is simply an electronic book of pictures and words.

By pressing a letter a picture will appear, a for apple for instance. The apple is then eaten before your eyes. Children are encouraged to press letters and discover the object and word associated with it on their own. Or working with a parent or teacher

➤




add up...
10p
5p +
p
10
5
5

Why don't you clean up your act?

With the HCCS HardCard!

The HCCS HardCard45 and HardCard100 can help to transform your computer (and your desk) into a professional tool with a large amount of hard disc based on-line storage. All those applications on floppy you need, and had to look for, can be at your fingertips in seconds. The HardCard consists of the tried and trusted HCCS SCSI technology together with a slimline hard disc drive and a fan in a case similar to a podule expansion case. The HardCard45 gives 45Mb of storage after formatting with an access time of 25mS. The HardCard100 gives 100Mb after formatting and an access time of 9mS. The HardCards are only available for the Acorn BBC A3000.

HardCard45 £349.00 ex VAT carriage FREE
HardCard100 £699.00 ex VAT carriage FREE.E&OE

HCCS Associates Ltd. 575-583 Durham Road Gateshead Tyne & Wear Tel (091) 487 0760 Fax (091) 491 0431 oral work and early reading skills can be practised. The concept of smaller and bigger is also introduced by using the < and > keys to make the picture smaller or large enough to take over the whole screen. This is particularly effective, and fast, on the 8 bit version.

The graphics are very colourful, fun and well drawn with the odd bit of animation to liven things up. A very nice program.

The next option takes you to **Snap**. As you'd expect this practises matching skills – picture to picture, letter to picture or word to picture. It's a shame that the menu screen didn't have enough room to display the whole word rather than just the picture.

Snap can be played with the computer or with up to three others, each allocated his/her own key – space, a or Return. As with all the programs the Escape key takes you back to the main menu.

The pictures are the same as in Alphabet Book and makes a natural progression for early readers. The pictures, letters and scores are all in large clear text. Each time a player gets a Snap he scores a point, but get it wrong and a point is lost. The first to three wins.

As all the other programs in this suite concern literacy, **Count'em** is a little out of place. It uses the same pictures seen in all the programs and the child must simply decide how many pictures are on screen at once.

There are three levels which are toggled using the spacebar – numbers up to 3, 6 and 9. My personal preference would be for a different toggle key as the spacebar is too easily to hit by mistake, but at least the levels are shown on screen. A nice introduction to numbers.

Spell It is my favourite program as it can be used without any parent/teacher around but I'd only use this option with children who were practising their spelling rather than learning to spell. Split into two difficulty levels one is the natural progression of the other.

The Easy option displays a picture on screen with a sad clown's face to the right. If the word is boot, a boot will appear on screen and underneath will be four little boots. Press o and two will appear in the right position. You can type in the letters in any order or guess – there is no penalty for getting it wrong.

The idea is that children can experiment to get the right spelling. For children with limited skills I'd recommend an adult be there as a guide to basic principles. Get a spelling correct and the clown smiles his appreciation.

The hard option gives a more structured approach to spelling with the letter having to be entered in the right order. Get it wrong and the word reappears with the first letter in place, make a second mistake and the second letter will be shown and so on.

Money Matters

You can't use this program without an overlay – doubling as a neat piece of protection – and we also stuck the plastic coins you can buy over the printed ones on the plastic sheet. This gave a firmer surface to press on and helped as the £1 and £2 coins weren't too clear on our sheet.

A total of four programs greet you along with a rendition of "If I Was a Rich Man" which you can quieten or turn off. **Cozmo's Coins** helps with differentiating between coins –1p, 2p, 5p, 10p, 20p, 50p, £1 and £2. It also introduces concepts of worth, value and the relationship of pence and pennies.

Get a coin right and it appears on Cozmo's nose and you're acknowledged with such remarks as, "Spot On", "That's the Ticket" and "Genius." There are three levels: The first encourages pressing random keys and then tells you their worth. The second and third ask for particular coins, the third timing your efforts. Our best score was 16.31 seconds and 10 out of 10.

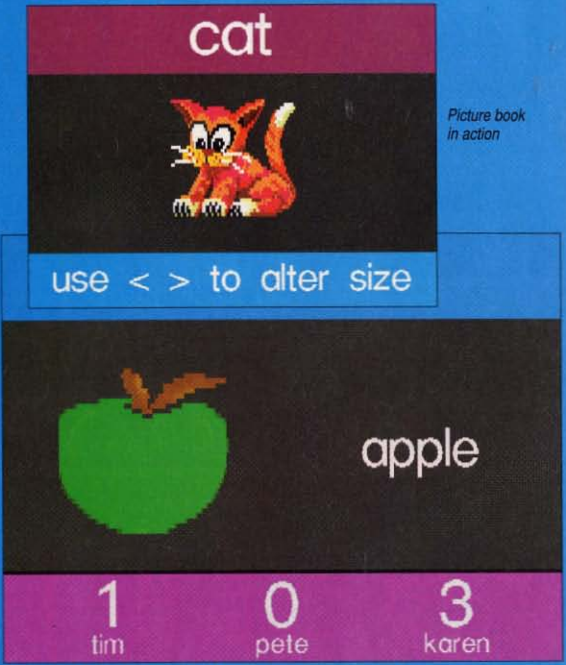
The graphics are first-rate, large, colourful and use the clown theme to the utmost. But graphically **Boingy, Boingy** stands out. A little green train brings a series of coins – you set the highest value and number beforehand – on to the screen leaving you to add them up and press the relevant coin on the overlay.

Get it right and the clown's nose bounces out on a spring and the spider hanging from his hair bounces around too. Superb. You are given two chances – with encouraging remarks – to get the right answer.

If the answer is still incorrect the program takes you through the calculation step by step in an easy and clear way. If you get the answer right first time you can gain 10p, but a lesson will cost you 20p.

Fizzy Pop applies the first two levels to a cafe. Again really lovely graphics are used as the correct change must be calculated. Teacher or parent again defines the parameters and incorrect answers are stepped through. Pennies can be earned for getting the right answers.

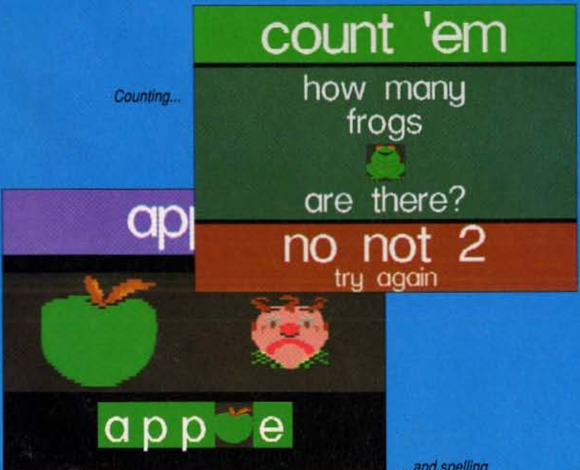
To earn even more money help Toothy fill his **Piggy Bank**. He thinks of an amount and a number of coins leaving you to calculate how to get a certain number of coins to add up to that amount. Get it right and you'll acquire some of his money. Get it wrong and you'll have to pay up. All in all graphically brilliant and educationally very sound indeed.


cat

use < > to alter size

apple

Picture book in action


count 'em

how many frogs are there?

no not 2

try again

Counting...

...and spelling

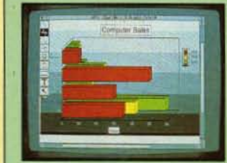
Summing up

Two useful sets of programs which are easy to understand for child and adult. They can be used in the home or as part of a wider program in the classroom. I was pleased to see that the graphics didn't suffer too much on the BBC or Electron.

The overlays take some getting used to, but the children seemed to take them in their stride and the Money Matters program was extremely popular with my pre-school group too.

ChartWell

A sophisticated Graph and Chart Package

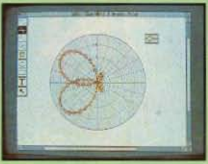


A single chart or graph can **display up to 6 different data sets**, including up to six pie charts in a single display.

An added option is proportional sizing, segment withdrawal in pie charts, labelling etc.

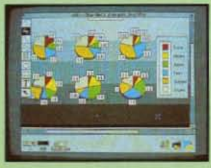
ChartWell offers **24 different graph types** including:

horizontal and vertical bar charts,
line graphs,
scatter charts,
polar plots,
and pie charts.



Data can be imported from other applications, such as spreadsheets, databases, or created with a suitable editor as a text file.

Output is in standard Draw format for import into Draw or any other application, DTP for example.

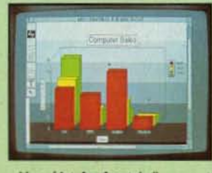


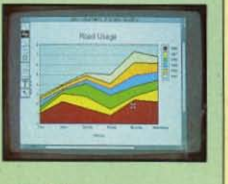
ChartWell allows a variety of **display options :**

flat or 3D bar and pie charts,
user choice of angle for 3D pie chart display,
clustered, stacked or layered bar charts,
scatter graphs with choice of curve fitting techniques, regression lines and correlation coefficients, and use of error bars,
line graphs with choice of normal, cumulative area or stacked area displays.

ChartWell gives you **complete user control** over:

choice of colour,
data point styles,
bar widths and spacing,
use of titles and labels,
legends to provide a key,
graduated and shaded backgrounds,
scales and tick marks, etc.





Flexibility

ChartWell allows you to select only part of the data for display.

You can also change the order of display - a useful feature when creating bar charts - data can be arranged in ascending order so that long bars will not overlap shorter ones.

Use of **'style sheets'** allows a set of options to be saved with data for future reference. User choice of start-up options.

Quality Software at Affordable Prices

DeskEdit

An advanced all-purpose multi-tasking Text Editor for the Archimedes, with special features tailored for use with plain text, Basic and C source.

General editing features

Three special Find and Replace modes - from Simple to Power Search
Additional Quick-Search mode for rapid retrieval
Text macros to insert user strings in both text and source code
Special Undelete buffer for moving text around, in addition to Edit-style Undo/Redo
Dedicated markers and position finders for finding your way around large files.
Clipboard, providing an alternative way to move text around

Plus

On screen Help - full documentation in a scrollable window
Instant file info feature, and current directory setter
Caret flash controller for DeskEdit and other applications
Customised user commands to open directories, run other applications and launch Obey files
Numerous keyboard shortcuts including date and filename insertion, changing case, moving windows to the front or back of the stack, parking the mouse pointer, inserting printer codes etc.

Printout

Fast text printout including style codes for bold, underline, italics, page breaks etc.
Special text printing options with headers, footers, page numbering and style codes.
Useful Preview mode.
A Statistics option with a summary of aspects of the text to be printed.

Language specific features:

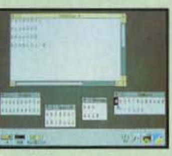
DeskEdit will format word-wrapped **plain text** as you type.
Basic files will automatically be detokenised, when you drag them to the icon, and loaded into DeskEdit ready for editing. F3 will retokenise and save them after editing.
Function and Procedure browser.
Automatic line number insertion.
Special **C language** features.
Auto indent facility combined with automatic generation of opening braces streamlines source code entry.
C function browser and synthax checker

from RISC Developments

PolyGlot

A foreign language character generator for the Archimedes

Open a window for any specified language, and this will display all characters which are impossible or difficult to obtain from the keyboard: for example, accented characters in French,or umlauted characters in German. Select any of these characters with the mouse and it will automatically be inserted into your document.



Why PolyGlot is Better than any Other System

You can see all the characters you need in a window in both upper and lower case; you do not need keyboard overlays.
You do not need to set your keyboard to a foreign standard to obtain appropriate foreign characters.
You can work with different languages or alternative character sets simultaneously.
You can use any character set, any alphabet and even scientific characters (provided your fonts support these).
PolyGlot provides comprehensive printing support.

PolyGlot is Fully Customisable

You can tailor the application to your own specific requirements and include only those languages and characters, which you actually need.
You can use PolyGlot as a simple way of selecting from any set of characters, not just those which relate to a specific language. For example, you could have a PolyGlot window open for currency signs or other symbols.
You can also customise PolyGlot to use any of the available alphabets within your Archimedes. For this you must have suitable outline fonts or printers which support alphabets other than the standard Latin1.
Ideal for education where the package can be readily tailored to suit any needs of both individuals and classes.

Wimp Programmer's Toolkit

Twelve powerful multi-tasking utilities - an essential aid to any programmer

Wimp Debugger - debug Wimp-based programs while testing and running them.
Spyglass - displays the contents of memory allocated to any task currently running.
Template Editor - Acorn's FormEd for designing windows.
Template File Browser- view the contents of a template file.
Application Shell Generator utility for creating application directories, Obey files and their sprites.
Menu Editor for creating and editing Wimp menu structures.
WimpAid allows pointer, window and icon parameters to be dynamically displayed on screen.
Iconbar Shell Generator - create simple multi-tasking programs
Desktop File Loader allows you to load a program from the Desktop, rather than run it.
Icon Flag Generator calculates the value of icon flags.
Wimp Message Monitor - monitors the Wimp polling system.
EasyWimp provides a ready-made Wimp application shell to be used for creation of single-window applications.

Software Prices

Chartwell	**£29.95**	Code **PCHWa**
DeskEdit	**£24.95**	Code **PEDTa**
Polyglot	**£19.95**	Code **PGLTa**
Wimp Programmer's Toolkit	**£19.95**	Code **PWPTa**

Other Products

Arcscan III reference finder	**£18.95**	Code **PAS3a**
All-purpose reference finder for books, magazines and manuals		
Arcscan Library Disc	**£ 9.95**	Code **PAL1a**
Index for Acorn User and Micro User from Jan 1987 to date		
Desktop Applications disc	**£14.90**	Code **PDA1a**
ArcOmnibus Games disc	**£14.90**	Code **PAOMa**
File Handling for All book	**£ 9.95**	Code **BKO2b**
Disc supporting the book	**£ 4.75**	Code **BKO3a**

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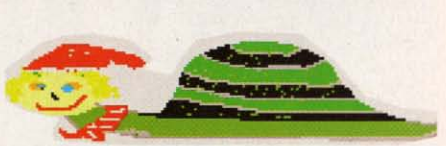
Gold, Frankincense and PD



Early into festive mood, Teri Paul recommends several seasonal delights for your delectation

WELL here we are again – Christmas – and don't the years go quickly. Thank you all for the carols and masses of snow-covered demos, there's an assortment for you to sample on the Archimedes subscription disc.

BBC subscribers will have noticed some PD programs on their November disc. We'll be continuing with this wherever there is room in future too – who said you can't get something for nothing.

BBC PD are now on their 100th disc and they're looking for rather special programs to feature on this centenary issue. As an incentive there are 10 free BBC PD discs on offer for the best piece of PD submitted to them before Christmas.

My apologies to Philip Woodhouse who wrote First Contact and Dreadnaught as I re-christened him Philip Hawthorne in the August column – whoops. However, Mr Hawthorne did write Plague Planet in 1988 as well as the ALPS adventure system.

Plague Planet is a rather superb text adventure and you can now obtain it as shareware – registration costs £5. Look out for the special offer on ALPS too. Staying with adventures, have a look at I Spy Red by Ian Hudson – it's got an interesting twist in it.

As you'll realise by now there are heaps of games in BBC PD but being hailedas one of the best is Pantheon. Available from BBC PD and from GLM it was written by Lars Osterballe and destined originally for the commercial market.

It splits into two games – a pre-game blast-'em-all out of the sky which you can leave at any time for the game proper.

This is basically an arcade adventure with you as Sergeant Silver who starts in Ancient Greece and ends in Outer Space. You'll need the instructions and map and these are available from GLM for £4.25. GLM will also be supporting the game with hints and tips.

The graphics are not the best I've seen on the Beeb but it's quite an interesting game and includes a tape maker. An Electron version is on the way too.

If spending hours solving levels and platforms is not your idea of a good time, then how about a touch of creativity.

Henley of Yorkshire Boys fame has come up with the PDTP for the BBC. Written in Mode 4 it has no facilities for manipulating graphics but you can load in saved pictures.

It is quite an easy program to use and the quality and quantity of fonts is good too. This simple DTP program will help you design letterheads and so on. Look out for the Yorkshire Boys new demo – Retribution.

It comes in handy

Most utilities in the PD are ones created for programmers for their own use – either to solve a particular problem or to save time. !Exit from Tom Godber and Scott Dupoy falls into the latter category. Once it's loaded, when you next quit on your Archie you'll find yourself in Basic. This should save you quite a few key presses. However, it defaults to Mode 1 – though you can change this – and the font manager couldn't cope when I wanted to return to the Desktop.

If you need a program to take you to and from Basic then try !LoadBasic. It has lots of handy features like Shift+double-click to load a program into Basic, and defines a couple of function keys for handy things like EDIT, QUIT and RUN.

There's also a system variable <BasicSave$Dir> which you can use with the in-core filename to ensure the program is saved back to where you got it – much better than altering the current directory. Unfortunately it tends to argue with !PlaceIt – which always loses.

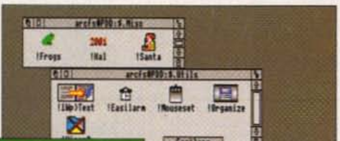
Worthy of an honourable mention are **!1Wp>Text** which as you'd expect makes your First Word files into Ascii. Useful as 1st Word Plus doesn't have

➤

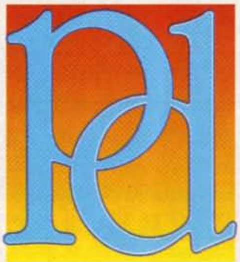
Master of all he surveys

Andy Nibbs sent me a very nice Christmas tree demo and rap for the Master, rather stylish even if it is a year old now.

If anyone has seen any of the MasterDisc programs you'll have been struck by the windows menuing environment. Called Aristotle it is copyrighted to Andy and it's very nice and intuitive to use, even though I did keep looking for my mouse. Indeed most of Andy's programs are well written using interesting programming techniques for the more technical of you out there. Pay special attention to the colour blending in CrazyBall – good graphics and a devilishly tricky game to play – and to the excellent sample player with Thunderbirds and the 19 fanfare samples plus voices from such films as Robocop.



Useful and fun bits and pieces



The traditional Santa Claus ...

From trees to snails everything is festive

... but what about his pixie helper?

➤

this facility which makes it awkward if you want to use the text in another package or on another computer.

If you use a variety of wordprocessors then **Keystrips** may be of help. Basically it gives you a key strip to put in your holder – if you have one – or balance on the groove above your function keys on an A3000. Giving information for 1st Word, Basic Editor, Edit and Impression there is also a blank strip for your own additions.

If you, like me, would be lost without Menon but don't use all its facilities then have a look at **!Organize**. Written by Mark Johnson it was developed as quick way to access files on a hard disc. Written to complement rather than replace !Menon it's an easy way to loading applications, files or opening directories you may need for a day's use but not on a permanent basis.

You can add multiple files by selecting them in the filer window and dragging the block of files onto the icon. The only problem to watch out for is that the name of each object doesn't have its full pathname. So you can can two files with the same filename but different pathname – confusing at times.

If you've been dabbling in the Public Domain you'll have noticed the number of products that appear via a whole host of bulletin boards.

Some are good, other bits interesting but a text file caught my eye this month. Called Jargon 231 it originally comes from the USA and gives you definitions used by programmers/hackers the world over. It also gives some very interesting typical features likely to be found in programmers. I applied it to a couple of colleagues and it was embarrassingly accurate. Humourous, brilliant and the product of an awful lot of research.

!Wiper2 comes from the same source. An updated version which now erases all directories, files and applications in one go, though there is no mass grouping and wiping possible.

New from the Fjords

I ran into one of the Brothers in Arms programmers recently, Guttorm Vik, and was glad that his English was better than my Norwegian. It looks like their programs are going to be few and far between in future as they are talking to 4Mation about some commercial products. In fact a lot of the better programmers are being snapped up by the commercial boys.

Mousey Mousey

Do you long for an easy way to set the step rate of your rodent friend? Then give **!Mouseset** a whirl. Simply load it on to your icon bar and choose between a variety of settings from very slow to very fast. If you want to keep these settings there is a save option too.

If you have got bored with your standard cursor then why not boot up **Pointers**? – a series of sprites which will change the cursor arrow. By putting them in your boot file – if you've got a hard disc – you can ring the changes. There's going to be an article in ***The Micro User*** in the next couple of months on how to customise your cursor on hard or floppy systems..

PD LIBRARIES

Do remember to always send a SSAE when you write to any of the PD libraries – they can keep their costs down only if you help, too.

Abyss Software - Archimedes
35 Grantley Crescent
Kingswinford
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West Midlands
DY6 9EH

ArchAngel - Archimedes
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Chancel Lane
Pinhoe
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RE Clark PD Library - Archimedes
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GL12 7AR

Cotswold PD - BBC
Maycombe
Field Road
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Stroud
Gloucestershire
GL6 6AG

Cream PD - Archimedes
38 Baunton
Cirencester
Gloucester
GL7 7BB

Datafile PD - Archimedes
22 Duxford Drive
Aldergrove
County Antrim
Northern Irelands
BT29 4BG

DataStream - Archimedes
32 Hollinwell Avenue
Wollaton
Nottingham
NG8 1JZ

Different Ideas PD - BBC
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Digital Illusions - Archimedes
20 College Road
Wembley
Middlesex
HA9 8RL

Digital Phenomena - Archimedes
104 Manners Road
Southsea
Hants
PO4 0BG

DigiTech PD - Archimedes
20 Downing Crescent
Bottesfird
Scunthorpe
South Humberside
DN16 3LS

Equinox PD - Archimedes
27 Station Road
Earls Barton
Northampton
NN6 0NT

GLM PD - BBC
2 Pierrefondes Avenue
Farnborough
Hampshire
GU14 8NF

Harston BBC PD/Shareware - BBC
70 Camm Street
Walkley
Sheffield
S6 3TR

JD Public Domain - BBC
Klembergerweg 7
7214 BK Epse
Holland

Mad Rabbit PD - BBC
22 Oakwood Grove
Horbury
West Yorkshire
WF4 5JE

MasterDisc - BBC/Master
2 Seaview
Hoylake
L47 2DD

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3 Rodmell Close
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BL7 9DT

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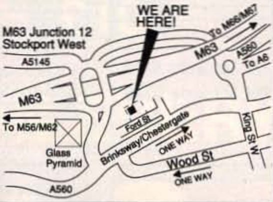

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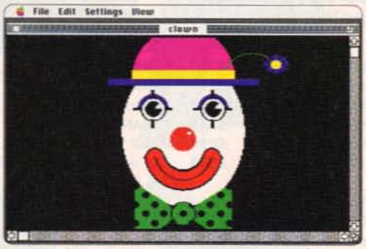
MU12

Announcing colour graphics conversion between the Acorn Archimedes and the Apple Macintosh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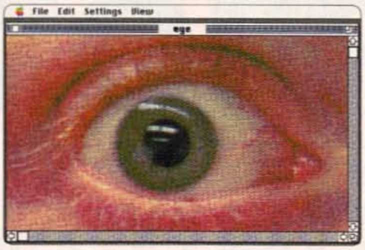
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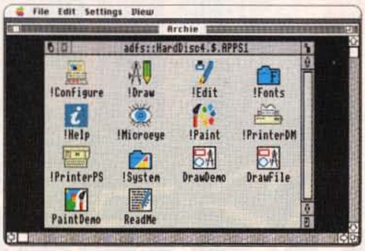
BBC Micro, Master 128, or Master Compact
Convert to or from a BBC Screen Dump in any appropriate mode, including Teletext. You can dynamically adjust the colours assigned to each logical colour in the original dump, to take account of different palette settings.

Macintosh
Convert to or from PICT, Colour PICT, or MacPaint format. Images can be manipulated in drawing and painting programs, or placed in other Macintosh applications, such as PageMaker, for subsequent colour printing.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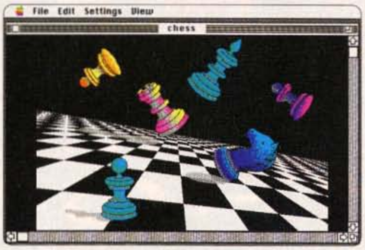
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Acorn Archimedes
Convert to or from an Archimedes Sprite in any appropriate mode. If the file contains several sprites you can select the one you want from a list of their names.

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Also … convert to or from Windows 3.0 .BMP files with up to 256 colours – the standard format for saving Windows screens, or for creating pictures in Paintbrush on the PC.

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Different Views

Terry Blunt finds other ways to look at his Archie

Product: Chroma 150 PAL Coder
Price: £185 (Chroma 135 £129)
Supplier: Wild Vision, 15 Witney Way, Bolden Business Park, Tyne and Wear NE35 9PE
Tel: 091-519 1455
Requirements: Risc OS machine

ONE of the features offered by the BBC B and Master is the wide range of links to the outside world. This includes three different methods of connection to a monitor. The Archimedes however, while maintaining RGB and monochrome video outputs, doesn't carry the additional UHF TV output.

The Chroma 100 series from Wild Vision are PAL encoder units that help to correct matters and also enable you to drive several different types of monitor at the same time. With a Chroma 150 connected to the normal RGB output from your Archimedes, you can drive your original monitor, another RGB monitor, two composite video monitors or video recorders plus a conventional TV or video recorder. All can be run at the same time without the slightest effect on each other. You'll also find a colour bar generator built in.

A Chroma 150 was supplied as the review unit. The 135 is a cut-down version with only one composite output, no RGB output, and no colour bar generator or interlace switching.

The significance of the last point is that the Chroma 150 can handle a 624 line non-interlaced signal, where the 135 can't.

Along with the PAL coder itself, you get a mains power unit, an RGB lead to connect the unit to the Archimedes, a leaflet with brief but adequate instructions, and drawings.

The coder itself is housed in a simple two-tone chocolate brown plastic box, with all connections and controls on a neutral finish mild steel front panel. Finger space is a bit tight on the front panel, but acceptable. Construction appears to be to a high standard, with everything except the switches and sockets mounted on a single PCB with the standard lacquer finish. Soldering looks good, including the hand soldered switch and socket connections.

The units run from the mains via the fairly standard, plug mounted mains adaptor provided. The DC plug itself is non-standard – which is an advantage – preventing accidental connection of the unit to the wrong supply. However, I'm not too keen on power supplies mounted directly on the mains plug – their weight could strain the wall socket. But if you're concerned about this you can always run it through a short mains extension lead.

The first test I made was to connect my normal high resolution monitor to one of the RGB outputs. There was no discernible difference between this and direct connection to the Archie. Next I tried the composite video into a different, medium resolution, monitor. Fine detail was lost here, on-screen lower case text being very difficult to read with confidence in Modes 12 and 15. This was mainly due to bandwidth limitations and there was some graininess due to the modulation effects of the colour sub-carrier. This became very much more noticeable when I connected a monochrome monitor instead of the colour one.

However, the limitations appeared to be due to PAL itself rather than any shortcomings of the Chroma 150. Colour shades matched the RGB levels fairly well, although a perfect match with different makes and types of monitors would be unlikely in any case.

A useful feature here would be the ability to kill the colour subcarrier so that large screen monochrome monitors could give a clearer display. They could then be used with the A400 series, which only has monochrome output for a special high resolution monitor.

My last test in this group was to view the signal from the UHF output to a conventional TV. This is where the colour bar generator is particularly useful, both as a tuning aid, and for setting the contrast and colour levels.

There was considerable loss of detail here. On-screen text using the system font in Modes 12 and 15 was almost completely unreadable, unless the contrast and colour controls were turned down as low as possible.

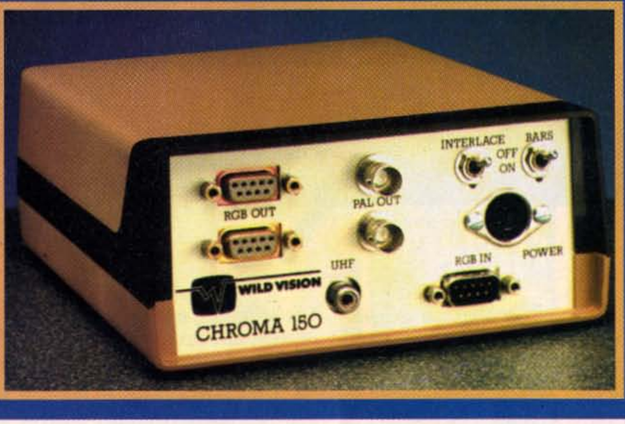
There was also quite severe *barber's pole* patterning on thin lines, particularly diagonals using saturated colours. This again can't realistically be regarded as a defect in the Chroma 150, but rather another PAL limitation combined with degradation of the signal as it passed through so many processing systems.

Probably the severest test you can give any video unit is to pass its signal through a normal domestic video recorder. With all the processing that takes place inside the machine, any slight defect in the system will show up. The problem I expected to see was vertical jittering, and possibly a little tearing at the top of the screen, due to poorly regenerated sync.

However the picture – finally displayed on a middle-of-the-road TV – having been recorded then replayed on a budget recorder, was quite steady. This demonstrates that no corners have been cut and a full sync signal is being generated.

The only problem that appeared was a marked shift to the right of all colour information, particularly when displaying a short test program with brightly coloured moving circles on a black background. This was really a problem caused by the recorder, not the PAL coder.

When using a PAL coder of this sort, you should really consider the type of signal you are trying to reproduce. If, wherever possible, you keep to mid-intensity colours, with soft edges you will get a lot more satisfactory displays than with extreme intensities and sharp edges. This is especially true of cartoon graphics or filled pie and bar charts.



Summing up

Overall, Chroma 150 performed well. It would be particularly useful for classroom displays, possibly feeding UHF into a distribution box so that several large screen TVs can be used. Another key area of interest might be home video processing, possibly even helping to create computer animated cartoons.

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Your technical questions answered by MIKE COOK

On the agenda...

- Driving you to ram
- Enhancing Series 3 BBC Bs
- Cordless communication
- Turtle projects
- Disc compatibility
- Mysterious errors

Talking turtle

STUDYING for my GCSE Technology Project, I aim to build my own floor turtle controlled through the BBC Micro. I am investigating the methods involved and would be grateful for any relevant information. **– B. Sole, Potters Bar.**

● *A floor turtle is a most popular school project, however, they are not always the easiest to produce. Back issues of* The Micro User *could help.*

The first problem is what to use for the motors. Stepping motors – May '84 – give good accuracy but are expensive and need driving by software. DC motors – April '91 – might be a cheaper alternative.

Communicating with your turtle using an 8-way ribbon cable does tend to be inflexible and removes mobility, so why not look at using the I2C interface May – Oct '91. With this, if your turtle has its own power supply you will only need three wires.

Moniter mix-up

ON MANY occasions I have tried to produce video presentations first using our BBC Viglen Master and, more recently, an Archimedes 440/1.

The UHF socket on the Master provides colour images – but the sound is terrible, but it is possible to use the video and audio sockets in combination, but then we only get black and white.

With the Archimedes we have a standard RGB monitor and I have made the internal adjustments – described in the manual – to connect to a standard mono monitor via the SYNC port but this output is also just black and white.

Is there any way to change this composite signal to colour, especially on the Archimedes? I'd appreciate your help because my back issues only go back as far as December 1988. I'd rather not buy an expensive PAL encoder for the Archimedes. **– Stuart Ford, Weybridge.**

● *The 8-bit BBC Micros never did have sound on the video or UHF outputs so it's hardly surprising the quality was bad. It was only there at all as a by-product of one part of the computer systen interfering with another – in the same way that you can pick up sound by placing an untuned AM radio on top of the computer.*

The older machines were intended to be used with TVs so had a simple form of PAL modulator fitted to them. This was possible because the colour guns only had two levels: On or off. The video socket did not have the PAL modulator connected to it as this caused slight interference to the monochrome signal. However it is possible to connect this up through a link or by adding a capacitor.

With the Archimedes, however, the each of the colour guns can be in one of 16 levels of intensity, which gives 4096 combinations. This means you have to provide a proper PAL modulator, hence the expense of the commercial units. The Archimedes doesn't have an internal modulator so you'll have to buy or make one.

Series 3 problems

I AM still using an early issue 3 BBC Micro and I have a few problems. If in the first few minutes I change mode – Edit to Preview in Wordwise Plus for instance – the machine crashes. It either crashes completely

➤

Speak English

I AM very confused about the different types of extra ram available for my issue 7 BBC B. Does the Aries B-32 Shadow Ram Card provide the special extra feature that I need for the Wapping Editor?

I understand two static 6264 8k Sideways Ram Chips can be purchased for the Solderless Sideways Rom Board from Watford Electronics. So I was interested in Phil Williams' letter in the October 1991 issue of *The Micro User*. He said a 62256 16k static ram chip will work in any rom socket in the Slogger Rombox Plus. Are these available for the BBC B?

If not what are the differences between the 62256 ALS-15, 62256P-12 and 62256LP chips. Furthermore, could this extra sideways ram be used to load rom images and fun extra effects? **– Philip Douglas, London.**

● *Jargon is difficult for newcomers especially if, like here, it is specific to one type of computer and has been built up over the years.*

Sideways memory is a 16k area of the computer memory from address &8000, where up to 16 different memory devices can exist simultaneously although only one can be accessed at a time. It is used for filing systems, languages – such as Basic – wordprocessors and utilities. If you have ram here you can load such utilities from disc.

Static ram does not need refreshing circuitry and it is possible to keep the memory contents with the computer turned off by using battery back-up. You can't use 16k ram chips in the computer's rom sockets because there are no read/write signals routed to the appropriate pins. Some rom boards like the Slogger Rombox has the extra wiring, most do not.

The difference in the ram chips is one of packaging and/or access time. But to help:

LP – low power
P-12 – plastic case 120nS access time
ALS-150 – 150nS access time

Shadow ram is an extra bank of memory that sits over the graphics area of memory. A software patch switches between normal and shadow memory. Using the latter with graphics operations and the normal memory at all other times. This means that you do not lose any memory available to Basic when you change modes.

More Compatibility

HAVING recently acquired a 1.2Mb IBM PC compatible disc drive, I'd like to use it with my BBC B. Ideally I'd like to keep my old drive and use both together as a double drive. Is this possible and if so how?

I was also considering upgrading to the 1770 disc controller. If I do will I still be able to read my present discs with it? I'm using the Watford 1.3DFS at the moment. **– Oliver Cope, London.**

● *You should be able to use this drive, but you'll not be able to get it to hold 1.2Mb due to the different ways the computer sends data to the disc. You can use this drive as a double-sided 80-track drive, which means that each side will appear as a different drive – 1 and 3. All you need is an extra cable to chain it on to your present drive, like the Watford Data Duck or one you make up yourself.*

Remember to remove the terminating resistors from the drive furthest away from the computer. You should be able to read your Watford DFS discs on a 1770 controller – providing it's not the Solidisk one. The only problem you might have is that if you have used Watford's extended format directly you'll need to get a Watford DFS for the 1770 chip.

SOLVED

HELP

PROBLEM SOLVED

HELP

or multiple *Press any key* is generated down the page and odd pixels seem to be activated. Returning to Edit mode may recover the document but garbage appears when I try to print.

Some of my big documents have to be split into four and yet I still have Preview problems and am unsure if I need a rom/ram expansion. On the hardware side I need a second 5.25ins drive. My single drive is powered from the micro. Is the Watford Data Duck and Power Duck a good buy? I am using a Watford DDFA 1.53 in double density, 62 file mode. Should I upgrade?

I find I need a business program: Spreadsheet, database and a graphic display of data – pie charts and so on. What should I buy and should I scrap my Wordwise Plus for a better wordprocessor? – **J C Wilson, Keighley.**

● *When you change mode there is a slight power surge. It could be that one of the spade connectors carrying the 5 volts round the circuit isn't making a good contact. This would cause the power supply impedance to be down, causing a voltage drop and a crash. Try squeezing up the connectors.*

Buying a rom/ram expansion would not automatically give you any more room for your documents – it all depends on the software and if it makes use of the extra space.

If you use the Power Duck you'll be running two drives from the computer's power supply. While many people have reported no problems with this set-up, I would always recommend using a separate power supply for disc drives. I can see no reason to upgrade to any other DFS. Your only option would seem to be to get the ADFS and in my opinion this is not needed on the model B.

If you want an integrated package have a look at Mini Office II. But Wordwise Plus is quite a powerful wordprocessor so think, before you change, about what features you'll actually use.

Master chat

HAVE you any knowledge of a "chatty" book about the Master series. I have the two volumes from Acorn and David Atherton which are too advanced. I'd prefer a simpler book with diagrams and basic information.

What is the battery in the Master for? – **R. Davis**

● *Your best bet is to look at some of the major advertisements in this magazine and ring up the dealers and ask them for a recommendation. In this way they can get a feel for exactly what you want to know.*

As to your specific points, the battery is used to maintain the real-time clock and to hold on to the memory in a few bytes of ram. This allows you to configure default values to suit you – serial or parallel printer, DFS or ADFS and also any shift in the TV screen.

Unreadable discs

I HAVE recently bought a 1770 Solidisk DFS and I'm very happy with it except for the fact that I cannot read my brother's Acorn 8271 DFS discs.

I'm using a BBC B issue 7 with GXR, DNFS and a second processor. The DFS rom is the STL ADFS 2.1 11/10/85 which sits at the right of the motherboard, while the 1770 board is a two chip affair.

The board had DDFS and WD1770SOLIDISK written on it. Is it possible to read and write 8271 discs with this hardware? – **Paul Collins, Sheffield.**

● *It is. Unfortunately it's not possible to read it with your software. Solidisk used different double density headers to those normally used and did not provide the software to read normal discs. Is it any wonder they're no longer serving the Acorn market?*

Unfortunately, I know of no utility to read them but there must be someone out there who has written one...

Losing the cord

HAVING started a project to help to develop a cordless, low-cost computer-to-computer, 8-bit link, I have come to a point where I need some advice. I have seen a number of cordless mice and keyboards advertised and need to contact the manufacturers as I want to investigate the possibility of using a similar technology. Can you give me their details? – **Nick Tebbutt, Cheshunt.**

● *The problem of cordless communications is what you use as a replacement. The most popular system for keyboards and mice is to use an infra-red link which means that the two systems can "see" each other.*

However, I did hear of an impending cordless network system for the Macintosh. I think this uses a radio transmitter and the regulations concerning lower powered transmitters are a lot more relaxed in the USA than here. Most of the available units are based on the remote control systems developed for the TV market. The major chip suppliers are Plessy and NEC. Try looking at NEC's MM53200 Digital Code Transmitter – Receiver System.

Subscription discs show up system diferences

I HAVE been copying some of the games and utilities from the subscription discs and am having trouble with some of them.

I have a BBC B extended with Watford's rom and ram boards, fitted with the likes of Interword, Floppywise+, Pineapple PCB, Spellmaster and Dumpout. Although I'm in a hot country, the room temperature doesn't normally get above 25°C.

I don't know for certain whether I have a fault on the computer or not because I have trouble with the PCB after about 40-50 minutes. But I've used a ram tester for hours and it shows it as serviceable.

Perhaps the programs I have problems with have something in common. The error messages vary but include *too big* and *mistake at line xx*. Some programs just hang up, while some of the games will only run for a couple of minutes. I've tried switching off the other roms but that doesn't help. – **R. J. Laycock, Dharan, Saudi Arabia.**

● *As you obtained the programs from the subscription disc this is not going to be a problem caused by your typing. However, there are many subtle differences in systems out there and this might be causing the problem.*

The Mistake at line xx *error message could be caused by Basic I and the programs being written in Basic II. The extra instruction being used is probably OSCLI that is used to talk to the operating system.*

This could also explain the hanging up symptom as this would happen if the program has an ON ERROR instruction.

Many people trap errors by simply getting the program to RUN again so that pressing Escape just starts it off again. In the face of a real error this causes the program to hang. Also Basic II has slightly different disc filing commands so this could explain some of your problems.

The Too big *error is probably caused by some of your sideways roms grabbing extra disc space. Try typing PAGE=&1900 before you run any of these programs.*

I'm not sure what problem is with the PCB, but performing a ram test doesn't ensure that your computer is error free. There are many other things that could be causing our problems.

However, you do have a full computer and I should try removing all extra roms and boards and see if the problem goes away. It might just be that you need to have a fan fitted to reduce the temperature inside your machine.

Has upgrading your BBC Micro given you hardware you no longer need? Or have changing interests left you with unwanted software?

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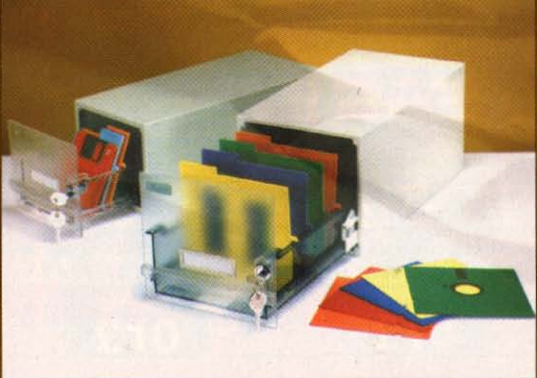

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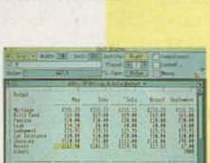

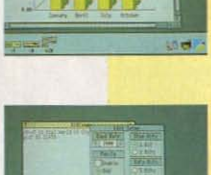

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word - processor

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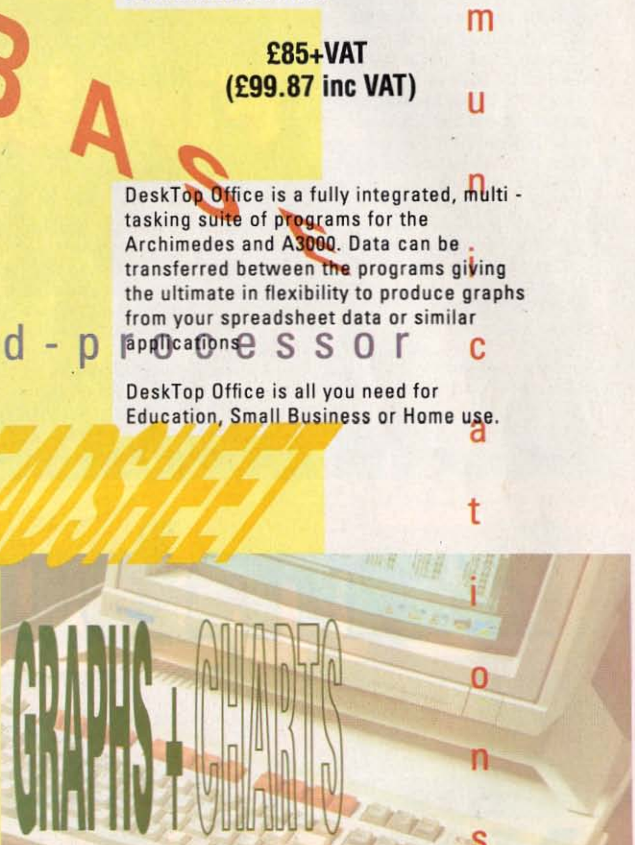

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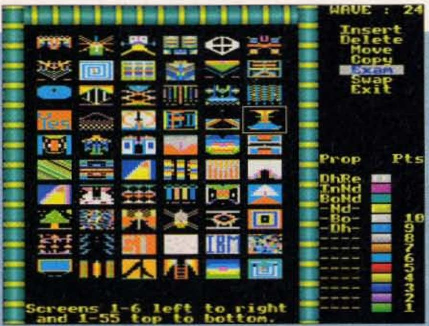
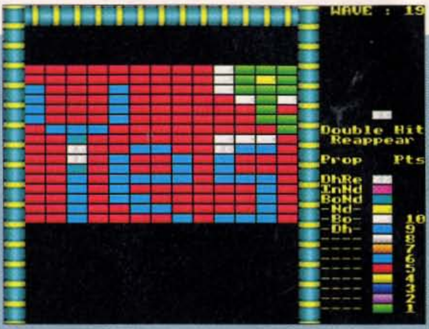




Fireball II Extra

... more power to your bat

Price: £14.95
Supplier: CIS, Unit 2a, 436 Essex Road, London N1 3QP.
Tel: 071-226 3340
Requirements: BBC A3000 and Archimedes range

FIRST there was Fireball, followed by Fireball II and now you can play Fireball II Extra. Not only does this give you copies of the Fireball and Fireball II but the Extra refers to a screen editor in addition to the standard 180 screens.

For anyone not in the know, Fireball is an Archimedes version of that old favourite Breakout. You are presented with a wall of differently coloured bricks in a variety of patterns – the opposition.

Below this is a golden bar – your bat on which is placed a ball. By positioning the bat and ball you must ricochet around the screen destroying the pattern. You'll score points for doing so and should you succeed you'll proceed to the next level.

The game is simple and compulsive. You can use the mouse or the keyboard – I prefer the mouse response – and you must catch the ball before it leaves the screen. If you fail you'll lose one of your lives. To add a little variation to the theme Fireball has a host of options for you to try in the form of special bricks. When these are hit, they will not just disappear but transform into gently rotating cylinders which will fall to the bottom of the screen.

If you catch these they will continue to rotate off screen to let you know how your bat has mutated – to give you additional bats, a multitude of balls, jump levels and so on. Do try and avoid the cylinders with the letter R as this reverses the bat controls and is very irritating. Should you succumb try to catch the next N cylinder which will neutralise any operating cylinder.

Pay close attention to the different colours in the patterns. Coloured bricks will disappear without any problem, but when you come across the ridged, pink, green, yellow bricks you'll really start to panic. Some are totally invincible, others need two hits, while yet another set will drop bombs on you – try not to miss the protection cylinders when these start falling on you. To be really mean some nasty little designer has popped invisible bricks into the designs. These appear briefly at the beginning of a new screen before disappearing so pay close attention.

You can alter the challenge for your own ability level making the controls more or less sensitive as well as

Bambuzle

... joining the classics

Price: £19.95
Supplier: Arxe Systems, 279B Romford Road, Forest Gate, London E7 9HJ.
Tel: 081-534 1198
Requirements: Risc OS

YOU can sometimes go months and months without finding a game which intrigues and catches your interest to such an extent that all else falls by the wayside. Then three come at once

In the last couple of months there have been such addictive classics as Lemmings, Loops and now there's Bambuzle.

Not renowned for their games software, Arxe are rather better known for serious utilities and hardware. If Bambuzle is typical of their output they have definitely being hiding their light under a bushel. A couple of levels were released earlier into the public domain and caught quite a few people's attention. It was a nice ploy and it was with some enthusiasm that I booted up the game.

Single tasking though it is it does return you to the desktop and you'll find that any error messages your Archimedes throws at you will be embellished with the Bambuzle logo.

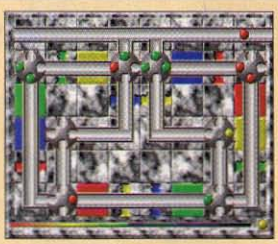
Kuldip S. Pardesi has a growing and deserved reputation for his graphics and the 3D style of Bambuzle mixed with digitised pictures is very effective and a development of the style probably first seen in Shibumi's ArcPinball. The finish and polish is all you'd expect of a 32-bit machine.

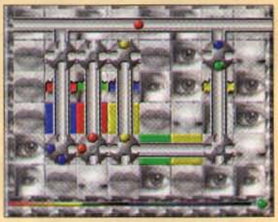
Like all successful addictions, the game is very simple. Your task is simply to work through 50 levels collecting different coloured balls against the clock – what could be easier? Level one is a breeze and builds your confidence – which then becomes increasingly shattered as you play on.

There are these pods, you see, that hold four nicely shaded balls which appear at the top moving backwards and forwards along a pipe. When a pod has a space available the ball pops into the space. Oh yes, and you can rotate the pods.

If you collect four of the same colour in a pod – red, blue, green, yellow – they explode and a button pops out of the middle. Fill each pod before your time runs out and you may receive a time bonus and find yourself on the high score table.

Now the real fun starts. There are traps laid for you of increasing complexity. You can only get to some pods by going through three or four others first. Not too bad. As you pass a ball from one pod to another it can change, for instance, from red to blue.





OK, once you realise what's happening. But some traps change a ball from red to blue and back to red, while others change it to red but won't let it go back except by a tortuous route. Some will only accept one colour which is needed by another pod on the other side of the puzzle altering the speed – using the keypad – while you are playing if you want. If you feel that you are in a totally impossible situation you can always commit suicide.

The Screen Editor allows you to enhance the standard screens or make fiendishly difficult ones of your own and this is what is different about this version. Using the mouse you can delete bricks or replace them with ones of your own choosing. The bricks and their properties are displayed on the right.

In addition you can move the position of screens, examine them or swap two around. This I found very useful if I wanted to pop in some intermediate screens and then discovered that they didn't fit too well with the ones already there.

I especially liked the ability to change the start-up default screen with one of my own though it is not the simplest operation in the world.

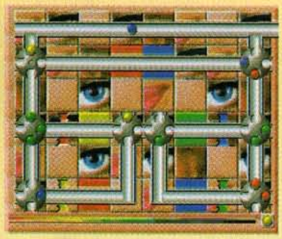
Once you have finished your design you can test it with infinite lives, which is very useful to make sure that you have the right blend of difficulty and playability. Believe me this balance does take some time to achieve.

The instructions are reasonably clear and contain some useful hints on how to get the highest scores. But as with all good games and editors you can just load up and go. Fireball II's editor has been reasonably well thought out and as you get two complete games too it is good value for money.

Jo Giles

and on and on. Hit two balls together and they both disappear which can be a blessing and a curse, you have to be very quick of the mark with the mouse buttons – select releasing the ball, adjust turning the pod. As you play the layouts get more and more complicated and the time seems to run out so much faster. And if you want help all you have is a little icon on the bottom right which tells you the colour coming up next.

I do prefer games – especially addictive ones – which allow you to leave and then return to where you were. Each level has its own password: Choose the level you want to play from the menu screen and you'll be asked for the password for that level – type slowly.



You have 50 levels of challenge accompanied by sound effects and music and your efforts commented on with *oh dear, brilliant, excellent* and so on. The start-up screens cycle quite slowly but the game is paced just right and is an absolute must. Now I really must get on ... time for a quick level I think.

Teri Paul

Blitz

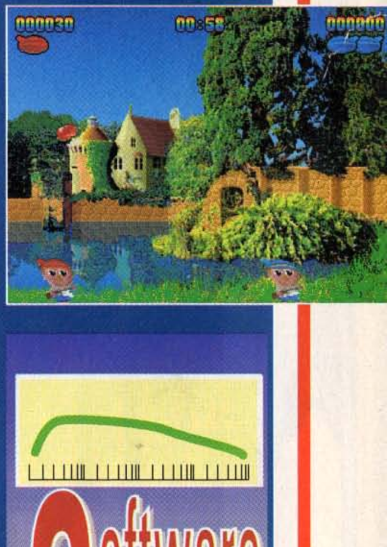
... what a bomber

AFTER having a quick look at Bambuzle I was really looking forward to Blitz, the packaging was colourful and promised a good way of whiling away a few hours.

Price: £24.95
Supplier: Arxe Systems, 279B Romford Road, Forest Gate, London E7 9HJ.
Tel: 081-534 1198
Requirements: Risc OS

I saw similar games on the Atari ST and Amiga a few years ago and as the name implies, you have to shoot everything in sight. Everything here means big red bouncy balls which on being hit become smaller balls which split into more smaller and smaller balls as you go on and on.

Each hit scores you points as well as being greeted by a cartoon-like Pow. Some of the balls release goodies to help you on your way – beer, shields, stopwatches for extra time and a case of much improved ammunition.



Your cute little sprite is well drawn and colourful as are the Atelier backgrounds – you start in an idyllic country setting – progress through more and more frantic bouncing episodes watching the changing scenery. But that is about it.

Your lives are indicated by baseball caps at the top of the screen where you'll also find your score. A very simple game which is nice to look at and quite easy to play on the lower levels, though with each new scene the destructive balls are harder to despatch without them hitting you.

There is a two-player option, but the number and routes of the bouncing balls are not random and even in the two-player option you have the same amount to contend with. On later levels bouncing bombs are included and there is a password system to allow you to go straight to your highest level.

Similar to Bubble Fair from Eterna, it's based on an old arcade game – BombJack – which though addictive at the time is now very dated. It is quite fun though and if you have been longing for a clone this is for you.

The game is keyboard based, one player using the main keys with the second using the keypad. As layouts go it gives you quite a lot room to move left, right, fire your rifle and on later levels go up and down. Simple, cute but a tad disappointing.

Jo Giles

80%

AIR SUPREMACY

... might is right

Price: £24.95
Supplier: Superior Software, P.O. Box 6, Brigg, S. Humberside DN20 9NH.
Tel: 0652 58585
Requirements: Risc OS

SUPERIOR Software produced the first major arcade game for the Acorn's 32 bit machines – Zarch, a 3D shoot-'em-up. This was followed by Conqueror, a 3D strategy-based real time tank battle. Now there's Air Supremacy, another 3D *blow things up a lot if you can* style game.

The plot line places you in the year 2150 when war is raging across the Antarctic for control of the Earth's remaining resources.

You are part of a special force trying to restore some sort of balance – by destroying everyone else.

Though outnumbered your forces are better equipped, but you must go through various training stages before being let loose on the real thing.

A combat simulator puts you through three 20th century wars and you are promoted when you wipe out all the land, sea and air vehicles.

Every game has its gimmick, and in this case you have the option of using a ground-based tank or an aircraft – you can swap between the two at either of two airports that represent your home bases.

Access to the game is through one or more menus. Initially you choose between playing the scenarios proper or two practice modes, one for ground level work, the other for air combat.

You have either mouse or keyboard control, I preferred the latter as it provides more precise control – there's no risk of accidentally diving when performing a low level turn.

Choosing to play takes you to another menu with three training scenarios, Novice, Skilled and Ace. Once the highest has been completed you gain a password to the first of the combat levels.

The training scenarios are set in Europe 1918, the Pacific 1944 and Arabia in1991 with the various tanks and planes taking on appropriate shapes.

However, apart from their maximum speed and firing rate, the gameplay is much the same. Planes and tanks are thirsty beasts and you must return to base often to refuel.

Object of the exercise in all cases is to wipe out every other moving object on the level. Ground-based enemy tanks are best handled with your tanks, although you can shoot them from the air. You must be airborne to take out enemy planes.

Two runways have radar towers, but enemy tanks will target these if you're not around. The radar display in the top right corner flickers if one tower is destroyed and goes off completely if both towers are out.

You can switch to onboard radar, but this has less range. The main screen displays a third person view with your vehicle at the centre, but in the top-left is a computerised cockpit view. This is very useful for lining up your target when flying.

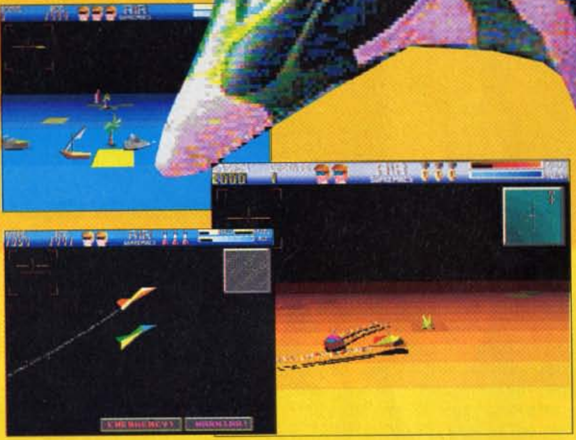
You have one front-firing gun at all times, although in level three of the simulator you also get a guided missile, and in the combat arena there are also smart bombs, energy shield and hyperspace jump to help you.

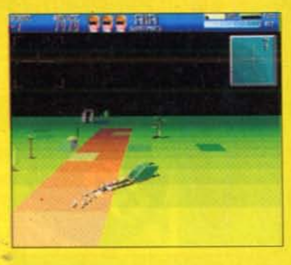
The shield and jump can be used as many times as you like as long as you have the energy required.

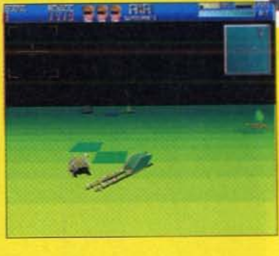
Air Supremacy ends up as a little bit more than a Zarch-style shoot-'em-up though a lot less than a Conqueror strategy game.

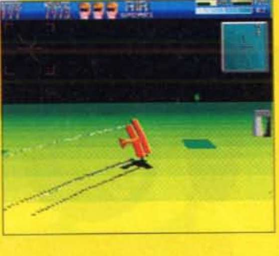
However it's fascinating to play and the futuristic ship designs are excellent – but you'll have to work through the levels to see them all.

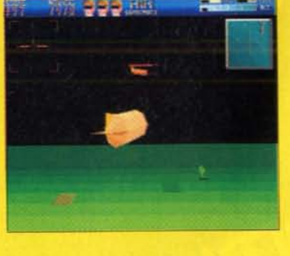
Geoff Brown











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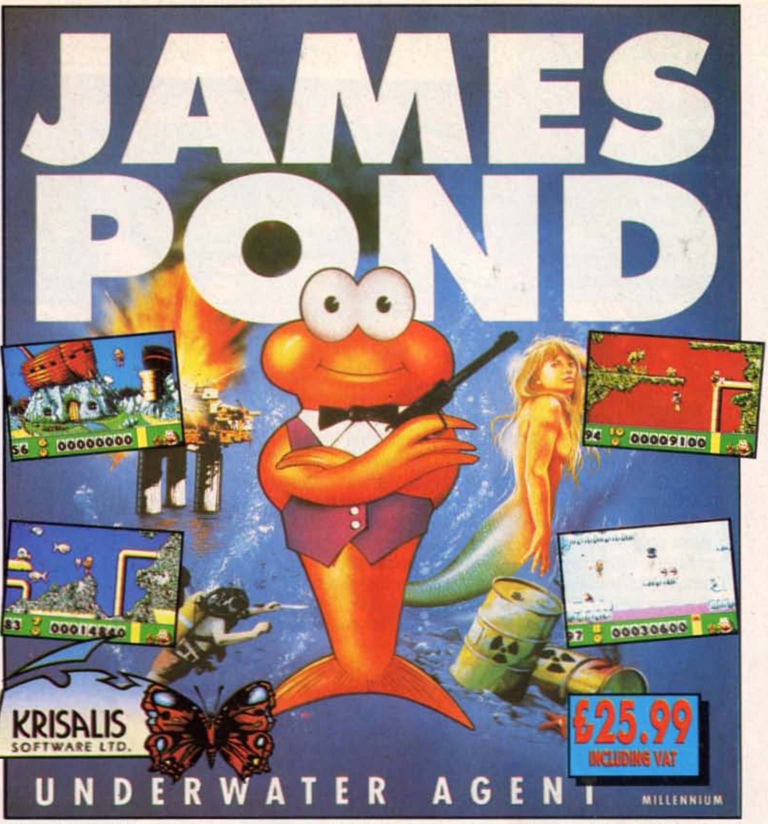
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ROCK

Price: £19.95
Supplier: Eterna, 4 rue de Massacan, 34740 Vendargues, France.
Tel: 010 33 67 87 32 12
Requirements: Risc OS

ONCE upon a time there was a computer called an Atari – XE not ST – on which appeared an extremely successful game called Boulderdash. It had construction sets written for it and migrated to more and more computers.

One day some clever 8-bit BBC Micro programmers created another creature called Repton who was destined to become the hero of the Electron and BBC. He even had a short sojurn on the Spectrum and Archimedes.

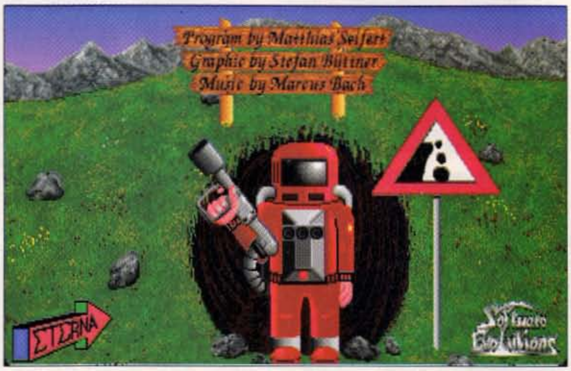
The next chapter contains all sorts of games including elements of these two highly successful games. But basically Boulderdash is back.

Renamed Rockfall and only available for the 32-bit machines, the game sees your hero still a miner but a high tech one. You are employed by the Rockfall Incorporated Mining Company, a highly dubious concern which employs you to delve into these mysterious caverns collecting gems – diamonds in the original – as well as collecting and using bombs – who put these here I wonder?

Straightforward you might be tempted to think, but being an experienced player of this genre you'll know better. The rocks are exceedingly dangerous, surrounded by mud which you blast away at as you walk. If you burrow under a rock it will fall down, leaving you open to be trapped or squashed to death. You'll be glad to know that the RIMC contract guarantees to inform your family of such a disaster.

You do need to dig though as that is how you find the gems. Apart from keeping an eye on the rocks, level one is a nice and easy gradient into the game.

Watch the gem counter as once this reaches zero the door to the next level will open – there's usually only one of these so plan your mining activities well. If you take too long an alarm will begin to sound. If you don't take heed, collect all the gems and get out you'll lose a life As you leave your character will turn and wave farewell, uttering the immortal and nicely digitised, *"Bye, Bye"*.



Level two introduces you to The Slime – a lovely blue substance which devours the screen and gems slowly but surely making your job hard if not

Emlyn Hughes Arcade Quiz –

General Knowledge Edition

... a test with a tricky twist

Price: £10.99 (tape) £15.99 (disc)
Supplier: Audiogenic, Unit 27 Christchurch Industrial Centre, Forward Drive, Wealdstone, Harrow, Middlesex.
Tel: 081-861 1166
Requirements: BBC B, Master and Electron

IT seems to be a trend visible across the world – the love of general knowledge quizzes. Some are straightforward, others have bells and whistles, but behind them all is the need of one person to prove themselves brainier than the next.

Computers too have had their fair share of general knowledge quizzes. In recent years we have been tempted by Trivial Pursuits, Sporting Triangles, Master Break and now we have Emlyn Hughes Arcade Quiz. This combines two old favourites sport and general knowledge.

The sporting side of the equation is upheld by laugh-a-minute Emlyn, but the questions are the real stars.

Three people can join in and it is as good to play with friends as it is alone, but what is the point of showing off your knowledge and prowess to an unimpressed computer screen?

But no quiz game would be complete without its own special gimmick. Emlyn Hughes' is that you must move around a board most of which you can't see. You move through the squares until stopped by a question and you will stay put until you get a question right.

Yet this is where the tricky bit comes in. The board scrolls from left to right and at the edges of the screen are two static bars – win and lose. If you are stuck too long you will be moved to the lose bar.

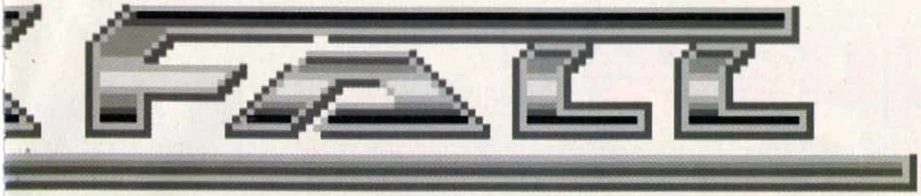
There is no score for getting the questions right just the opportunity to continue your journey collecting money and fruit machine fruits as you go – the more the better. Move on to the win bar when you want to pop your winnings into the bank.

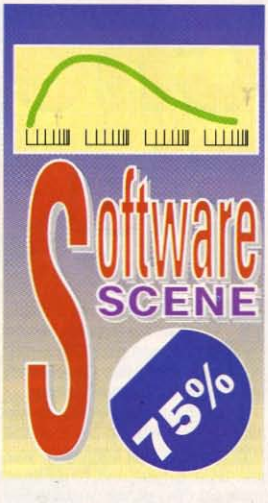
It is here that the bonus screen appears in which one or more questions must be answered. Called the Cash Game you can only play this if you have managed to collect some coins in the main game. Answer your questions here and you'll win a coin from 10p to £1 on the higher levels.

You can then cash in your winnings or play on. The next level requires an entry fee, pay this, win and it will be returned to you with what else you have managed to collect this time. Fail and your money goes to the computer.

But what of the fruit? Each time you collect a piece it appears in the fruit machine to the right of the win bar. Fruit moves from right to left in the fruit machine as you try to establish a winning combination. Get the right sequence and even more money will find its way into the bank.

The board is a type of maze with





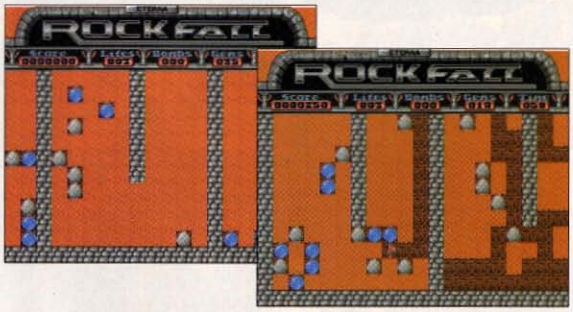
impossible if you mis-time a move. The gems are also more difficult to extract without them or the rocks falling on you. You might find it easier to use your flame gun to remove a piece of earth from a distance, or on the other hand you might be better to wait.

From now on you'll find that you are not alone. Apart from the slime there are also weird little creatures following you along your excavations – understandably they are not too happy about your presence and have no qualms about your demise.

Your flame gun will despatch them or you can block their way with a suitably placed rockfall. You could use the bombs you find, but they are not the most stable means of aid. Best to trust to your nimble fingers.

The game is keyboard controlled and you can redefine the keys or stick with the defaults. The graphics are small, but Software Evolutions have made a nice job of them and gone to town on the menu and information screens – the packaging doesn't do the game justice.

... dash under a boulder



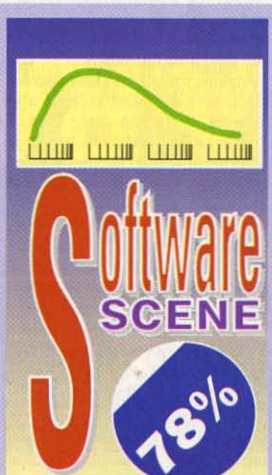
All the information you need is at the top of the screen: Score, lives, bombs, gems and time. And with password control over 100 screens this will keep you going for some time.

The scrolling is superb as is the response to your moves. But as with all good games it is the small details which make the difference. If you move down a previously cut tunnel you just walk, rather than blast your way. There is good and apt use of animation and digitised sound and the rocks can topple off one another if your mining allows it.

A very nice implementation of a classic which is still popular today in all its forms. Challenging, nice to see and good to play.

Pam Turnbull

Emlyn Hughes
A·R·C·A·D·E
QUIZ
BONUS
GENERAL KNOWLEDGE EDITION



dead ends and loops which can fool you into getting just that little bit too close to the lose bar.

You must learn by trial and error the optimum route to avoid the unusual blocks you are likely to come across: Kickers are shaped like record players and will throw you off in a random direction, Blockers are just a nuisance, Clockstopper stop the board moving but not for long, Blasters, SuperZappers and Zappers are an excellent invention blowing up all the questions you get for a while with varying degrees of devastation.

The Bonus squares are definitely worth getting to as you gain the opportunity to play an additional sudden death game against the clock.

But pay special attention to the Inverter which raises this game above the mundane. At the bottom right of the screen is thumb. When this is up you must get the multiple choice questions right, when it goes down you must get the questions wrong. In this case you have better odds of being right, I mean wrong – I think.

The questions are the real stars being a good selection of trick, easy and specialist tests. The questions' marks are different shades and patterns which denote the variety you are likely to be asked. There is no key to this so you'll have to plot this as well as the possible routes.

Just as you think you have mastered the game along come the invisible blocks. These usually block your way to useful fruits or coins. You can't move into one of these until you have assembled a certain combination in the fruit machine. There are still some coins which are still inaccessible though.

The graphics are clear, nicely finished and embellished every now and again by a laughing picture of the man himself. The keys are what you'd expect which is nice and the sound effects are limited to a ping when you get a questions right and to a blasting noise when you destroy questions. Good fun.

Petra Galloway

Chequered Flag

... faster and faster

Price: £24.95
Supplier: Cambridge International Software, Unit 2a, 436 Essex House, London N1 3QP.
Tel: 071 226 3340
Requirements: Risc OS

FIRST there was E-Type, then Powerband, Saloon Cars and now Chequered Flag, which, like Powerband, deals with Formula 1 racing.

The last three are all simulators and hence difficult initially, but it is well worth spending time building up your skill. Both E-Type and Powerband employed third person views, while Saloon Cars and this one are seen from the cockpit.

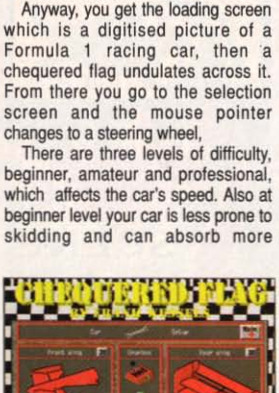
Booting the disc is a simple matter of double-clicking the !CheqFlag application. There's also a !MaxMem application for 1Mb machines.

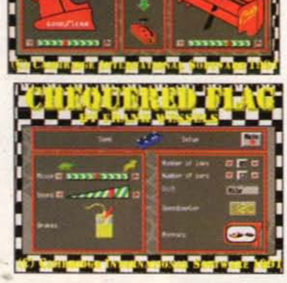
I'm glad to say that the program returns to the DeskTop preserving everything that was there, except that I use a SCSIFS hard disc and found that the default directory had been altered – I got a request to insert my hard disc!

I wish programmers wouldn't do this, it's very aggravating.

Anyway, you get the loading screen which is a digitised picture of a Formula 1 racing car, then a chequered flag undulates across it. From there you go to the selection screen and the mouse pointer changes to a steering wheel,

There are three levels of difficulty, beginner, amateur and professional, which affects the car's speed. Also at beginner level your car is less prone to skidding and can absorb more damage before it ceases to function. Before a race you should clock up a qualifying time or you will be dumped at the back of the starting grid – a place you'll become familiar with until you really get the hang of things anyway.


CHEQUERED FLAG
Car
Setup
Front wing
Gearbox
Rear wing
GOODYEAR


CHEQUERED FLAG
Game
Setup
Mouse
Sound
Brakes
Number of laps
Number of cars
Unit
Speedometer
Mirrors

During practice you're alone on the track, but when qualifying other cars are around, which should encourage you to set a good time.

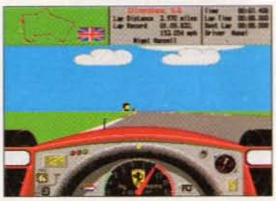
There are two competition types, single race and championship. In the first option each race stands on its own and has no relevance to any others.

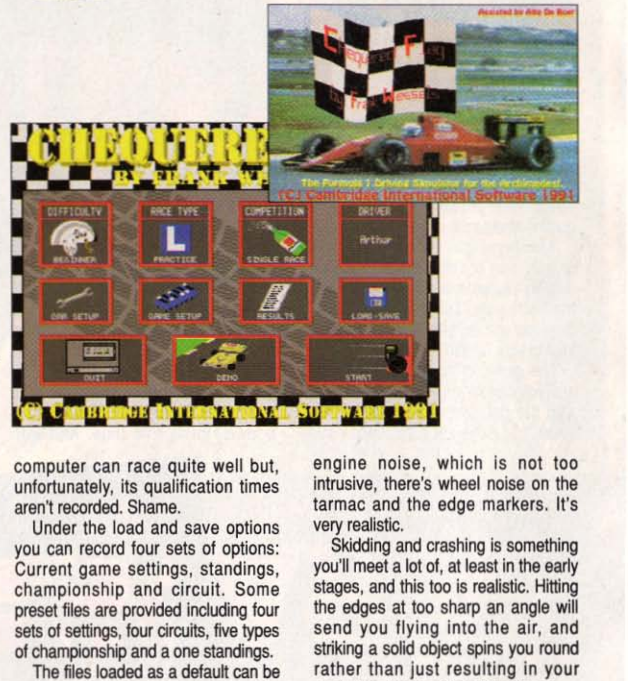
To take part in a championship you first have to load one, of four defaults. Once started, you can save the results as you go along, so you don't have to do it all in one go.

Three of the car's parameters can be altered – the tilt of the front and back wings, and automatic or manual gearbox. You can also modify the playing parameters to affect the sensitivity of the mouse, sound and which mouse key is the brake.

There are options for number of laps in each race, number of cars, the unit of distance measurement, style of speedo and whether the mirrors work or not – this will only become useful when your skill improves.

The demo option takes the current race and vehicle settings then runs a demonstration using them. The computer can race quite well but, unfortunately, its qualification times aren't recorded. Shame.




Chequered Flag
by Frank Weesels
The Formula 1 Driving Simulator for the Archimedes!
(C) Cambridge International Software 1991
CHEQUERED
BY FRANK WE
DIFFICULTY
BEGINNER
RACE TYPE
PRACTICE
COMPETITION
SINGLE RACE
DRIVER
Arthur
CAR SETUP
GAME SETUP
RESULTS
LOAD/SAVE
QUIT
DEMO
START
(C) CAMBRIDGE INTERNATIONAL SOFTWARE 1991

Under the load and save options you can record four sets of options: Current game settings, standings, championship and circuit. Some preset files are provided including four sets of settings, four circuits, five types of championship and a one standings.

The files loaded as a default can be set as well so if you're playing a big championship in a particular car you can start with the least delay possible.

So what's it actually like to play? Initially quite hard, it's not worth diving in and trying to race, or even qualify. Practice is definitely the order of the day – and lots of it.

The default track supplied is Silverstone, which is quite flat and has lots of straights,. You can adjust the mouse by trying a few corners then jumping back to the game settings.

The name of the game is speed, so accelerating hard down the track is essential, and quite fulfilling as the white markings flow by faster and faster. There are adverts, bridges, stylised cloud graphics plus various balloons and planes floating around.

However there are no grandstands and the terrain is not as detailed as that in Saloon Cars.

One section where Chequered Flag really scores is sound. Apart from the engine noise, which is not too intrusive, there's wheel noise on the tarmac and the edge markers. It's very realistic.

Skidding and crashing is something you'll meet a lot of, at least in the early stages, and this too is realistic. Hitting the edges at too sharp an angle will send you flying into the air, and striking a solid object spins you round rather than just resulting in your exploding into a million little pieces.

I really liked this game.

Lazarus

Software SCENE 83%

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Game Features

31 Levels of 31 x 31 Rooms
45 Animated Monster types
32 Weapon types
16 Armour types
29 Wand types
14 Ring types
12 Earring types
15 Scroll types
30 Other Objects
Saved High Score Table
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Some Intelligent Monsters
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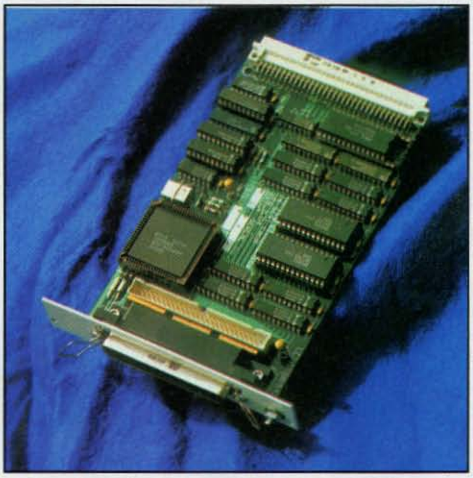

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Tel: 0305 822753
Requirements: A3000 and Archimedes range plus Amstrad FX9600 series

You can fax that again

Whether in business or not, faxes are here to stay. Jo Giles examines a profitable partnership

IF you have been waiting patiently for one of the promised fax cards for the Archimedes to make a timely appearance, you'll understand my glee when Spacetech announced their FaxScan.

Not a fax card, but an interface, it connects your Archimedes to the excellent Amstrad Fax.

Amstrad have been making faxes for a while, but it was the combined telephone, answer phone, fax, photocopier and scanner which made the headlines – perhaps because it was in the true Amstrad tradition of bundling everything together.

The real breakthrough was that this nice piece of hardware interfaced happily with a PC.

The programmers at Spacetech needed a fax integrated with the Archimedes and have come up with their own ingenious and simple solution using the Amstrad combo.

Slightly different boards are needed for the different models of Amstrad fax, so do check which you'll need first. After heaving the Amstrad baby next to my A3000 I set aside time for setting up the system. The fax machine – even without the interface – is fully Epson-compatible and can be treated like a printer, either for actual printing or sending faxes.

Spacetech's contribution is a small interface which plugs into the Econet space in the Archimedes and the serial port in the Amstrad fax. This means that you can't use Econet while you're connected.

After hunting around for a standard parallel printer cable – one isn't supplied – I inserted the relevant plugs into their prescribed ports, turned on and that was it – it took longer getting the fax machine out of its box.

When I tried it out on an A310 I had to take the expansion cards out, set up the system and replace the cards. A little tricky perhaps, but not beyond a novice, as the instructions are very straightforward. It took less than five minutes.

!PrinterDM is supplied with your Archimedes, and you'll need to load this before faxing, or using the fax machine as a single sheet printer – it's a bit expensive for this though.

Make sure that both software and fax machine are set up to emulate an Epson FX.

After a couple of key presses on the fax machine, simply print in the usual way; the document is printed from the fax machine.

When sending a fax the process is almost identical – all you have to do is remember to dial the number. Spacetech recommend using a printer sharer utility if you want to switch between the fax and your usual printer – and I can vouch for it being essential.

To send a fax you don't need the Spacetech software, as the machine is designed to operate with any computer – you could use it with an 8 bit BBC Micro or an Electron. But the other facilities, scanning, dialling from the micro and so on, do need the extra hardware.

!FaxScan sits on the icon bar along with the printer driver and allows the fax machine to double as

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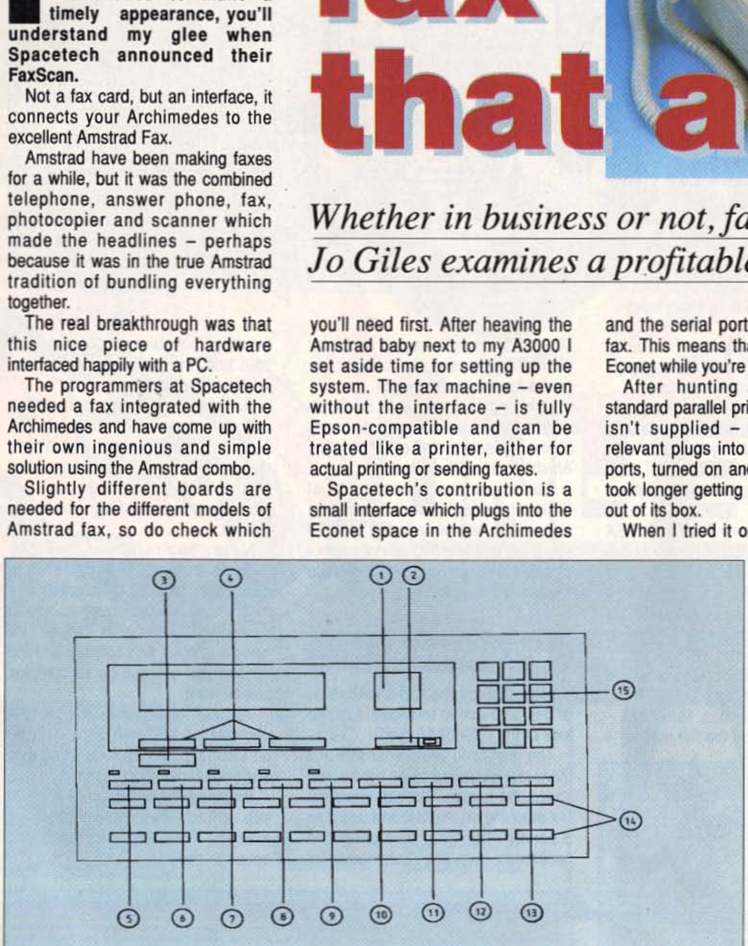


1 START/STOP	8 FINE
2 RESET	9 HALFTONE
3 MERCURY	10 COPY
4 SOFTKEYS	11 SHORTCODE
5 AUTO	12 ON HOOK
6 ON LINE	13 REDIAL
7 TEXT	14 ONE TOUCH KEYS/KEYBOARD
	15 KEYPAD

The main control panel

➤

a sheet-fed scanner. As it only does a single scan, the resolution isn't as high as that from proprietary scanners, giving a maximum of 200 dpi.

However, on the plus side at least the files aren't awkwardly large and, depending on what you're scanning, it can be very successful.

You can choose between three resolutions: 200 dpi giving two greyscales and 100 and 50 dpi offering 4 and 16 greyscales respectively. If you are scanning in text you would be best to use the 200 dpi option whereas the 50 dpi option is better for illustrations with multiple colours and shades.

Around 120k is needed for a 50 dpi scan, 240k for the 100 dpi and 480k for a 200 dpi image.

The Amstrad fax reproduces the greyscale by dithering, but you might find scans of illustrations a little dark. FaxScan can improve these automatically, but first you'll have to alter the contrast on the fax machine. The documentation details this quite simply and all in all is well written.

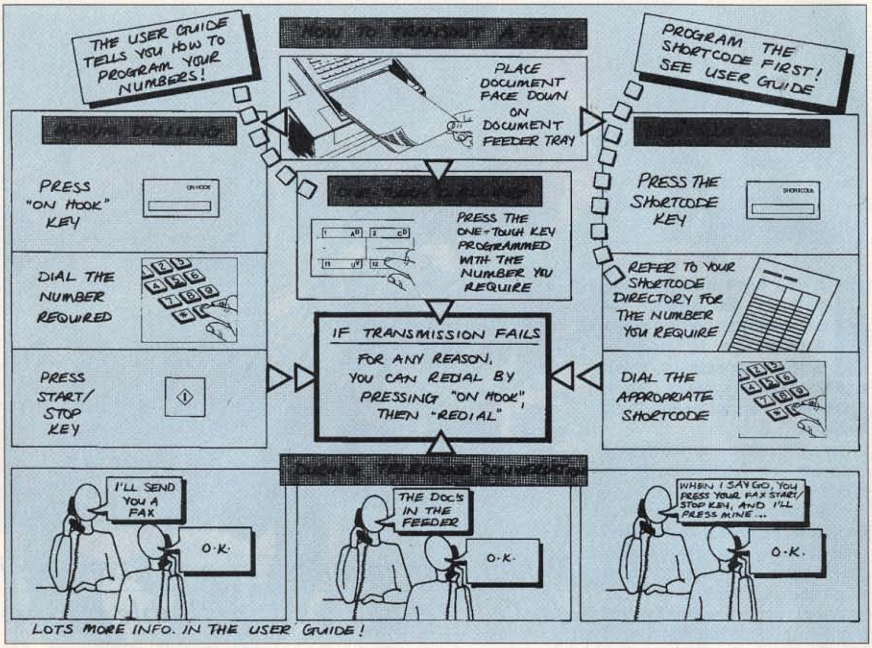
On closer inspection I found !Directory. Very simply it's a way to make your own telephone directory which is archived on disc and then sent to the fax. It is very useful for single key press or *One Touch* and *Short Code* auto-dialling.

Once you've used !Directory a couple of times you'll wonder how you could have managed without it.

The icon bar menu offers a range of options including One Touch, Short Code and Update, the latter simply saving your changes.

There are 20 One Touch keys and you simply type the name, telephone and/or fax number into the One Touch dialling window. There are a few restrictions though.

The name column is a string field, so any character can be input.


THE USER GUIDE TELLS YOU HOW TO PROGRAM YOUR NUMBERS!
HOW TO TRANSMIT A FAX
PLACE DOCUMENT FACE DOWN ON DOCUMENT FEEDER TRAY
PROGRAM THE SHORTCODE FIRST! SEE USER GUIDE
PRESS "ON HOOK" KEY
ON HOOK
PRESS THE ONE-TOUCH KEY PROGRAMMED WITH THE NUMBER YOU REQUIRE
PRESS THE SHORTCODE KEY
SHORTCODE
DIAL THE NUMBER REQUIRED
REFER TO YOUR SHORTCODE DIRECTORY FOR THE NUMBER YOU REQUIRE
IF TRANSMISSION FAILS
FOR ANY REASON, YOU CAN REDIAL BY PRESSING "ON HOOK", THEN "REDIAL"
PRESS START/STOP KEY
DIAL THE APPROPRIATE SHORTCODE
I'LL SEND YOU A FAX
O.K.
THE DOC'S IN THE FEEDER
O.K.
WHEN I SAY GO, YOU PRESS YOUR FAX START/STOP KEY, AND I'LL PRESS MINE...
O.K.
LOTS MORE INFO. IN THE USER GUIDE!

The wipe-clean card is extremely handy

However, the Voice and Fax fields will only allow you to enter digits, commas, brackets and spaces.

The spaces and brackets are ignored so it's a good way to split STD codes. But if you are in the habit of putting a – after 071, 061, 031 and so on, you'll have to replace it with a space.

Commas are only used with PBX dialling. They insert a pause of 3.5 seconds waiting for a dialling tone before proceeding. So if you intend to use the !FaxScan as part of a telephone network you'd have to input: 9,0625 878888 for instance.

The Short Code option works in a similar way, but gives you 30 fields.

When you send a fax next – rather than dialling the full number – choose the single key or short cut method by pressing the relevant key on the fax machine key pad.

Incoming faxes arrive in the usual way and the switch and answerphone systems are all covered in the Amstrad part of the equation.

Do keep a check on the roll of thermal paper. There's nothing worse than someone trying to send you a fax and you find you've run out of paper. Also remember to disable the icon on the bar.

The hardware

Having covered the Archimedes side of this partnership let's take a closer look at the FX9600AT itself.

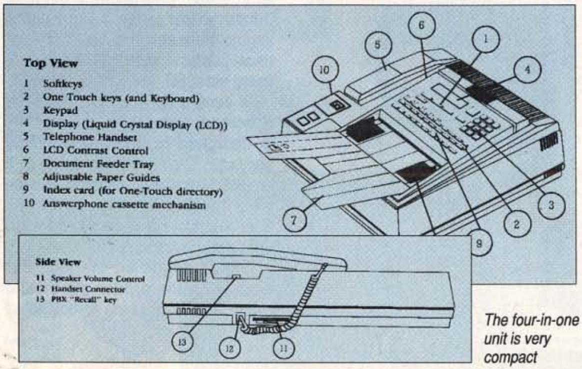
The manual is comprehensive and there is a nice wipe clean card which shows the basics. You can leave the fax machine on manual and use it as a normal telephone, only using it in conjunction with the Archimedes for faxing. However, considering the cost and facilities, this does seem something of a waste.

Automatic answering is an option well worth initialising. When you are next out or busy you can switch from manual to automatic and any caller can leave a message on the answerphone or send a fax at the prompt.

More sophisticated options include polling. Simply fetch a document waiting at another fax machine or prepare your machine to be polled by the next caller. The manual is clear and concise and the options you use can be as complex as you want.

You can also use it as a simple photocopier, but your results will be on thermal paper which is expensive and does fade after a while.

If you need fax capability now, or you already own the Amstrad fax machine, then this is definitely the option to choose.


Top View
1 Softkeys
2 One Touch keys (and Keyboard)
3 Keypad
4 Display (Liquid Crystal Display (LCD))
5 Telephone Handset
6 LCD Contrast Control
7 Document Feeder Tray
8 Adjustable Paper Guides
9 Index card (for One-Touch directory)
10 Answerphone cassette mechanism
Side View
11 Speaker Volume Control
12 Handset Connector
13 PBX "Recall" key
1
2
3
4
5
6
7
9
10
11
12
13

The four-in-one unit is very compact

Summing up

I don't know if I'll actually want a fax card now – my colleagues with PCs assure me that they are more trouble than they are worth. But then they don't have suppliers like Computer Concepts and Watford Electronics.

The main feature.not available is receiving faxes directly into the machine. The hardware is capable of it, and it has been omitted deliberately as the resultant files can be very large. However I would like to be able to make my own choice about this.

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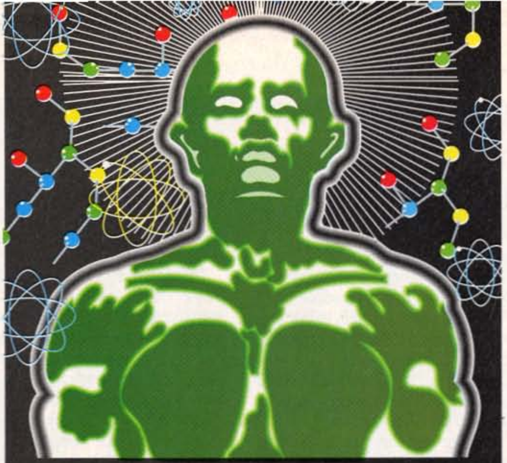
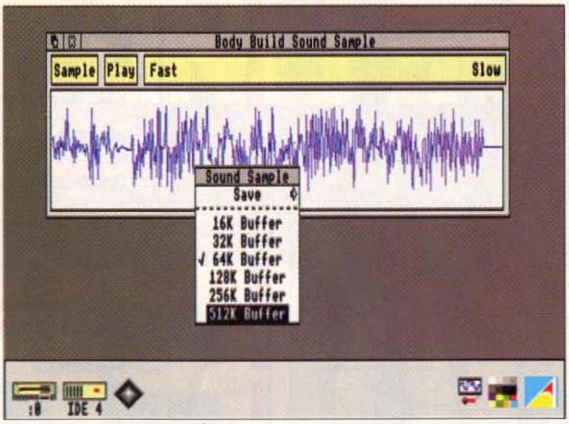


The Beeb Body Building Course

Sound Advice

Mike Cook sings a new song



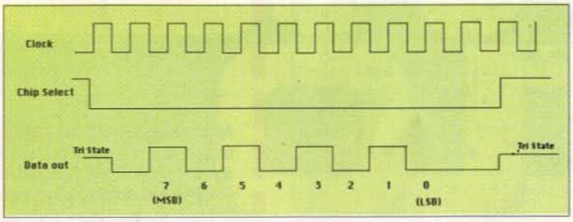


Figure I: The timing of the ADC 0831

Well here I am at Body Build 100, admittedly a few months behind the magazine itself but here nevertheless. It's all the more amazing because, as you might know, I originally only agreed to write four articles. So to celebrate this month I am going to look at a very popular subject and see how we can construct a sound sampler suitable for all Acorn computers.

That's a bit of a tall order for one article so this month I'll outline the common hardware and over the next few months we will see how to drive it from Acorn's different machines.

The main problem is that of interfaces – unlike the earlier models the modern Risc OS machines do not have a built-in User Port. However despite this I have come up with a design that neatly sidesteps the problem. Enter the ADC0831 – a very useful Analogue to Digital (A/D) converter.

Its main feature is that it has a serial interface so reducing the number of connections we need to make to the computer. It also has a differential input and a reference voltage input that can be turned right down. Basically this is an 8-bit successive approximation converter.

In order to drive the ADC0831 directly you only need three signals from the computer: Two outputs and one input. If you consider the ports you have on Risc OS machines you will see that the printer port offers not only nine outputs but also two logic level inputs for the Busy and Acknowledge signals.

On the 8-bit machines there is only the Busy input and that is only an edge detecting input not a level detecting one. So on the 8-bit machines we will use the User Port and on the 32-bit Risc OS machines we can use the printer port.

Figure I shows the signals you will need to apply to the A/D chip in order to perform a conversion. First of all the chip select must be brought low, then the clock signal must be applied. On each falling clock pulse the next bit of the conversion appears on the data line.

You will notice that there is a delay before the first data bit is obtained, and extra pulses are needed after the last data bit. This means that you need more than eight clock pulses to get out all eight bits of the conversion.

The clock signal has to be held steady for 1.25 uS – in other words it has a maximum rate of 400KHz giving a maximum sampling rate of 40KHz. However, having got the sample you have to do something with it like store it. This and other overheads bring the rate down to about 12KHz which is still fast enough for quite high quality.

With any signal sampling circuit it is important to stay within the Nyquist criteria. This says that the sampling rate has to be at least twice as fast as the highest frequency you wish to sample otherwise aliasing will occur. This is the generation of false signals, not present in the input.

Once these occur they can't be filtered out as they are in the same frequency range as the signals you do want. In order to stick within the Nyquist criteria we must pass our audio signals through a lowpass filter. In addition to this we also need to amplify our input signal to cover the full range of the A/D converter.

The full diagram of the sound sampler is shown in Figure II. I have used the TL064 quad operational amplifier to act as both the filter and level amplifier. As there are four amplifiers in this package I have used two for the filter and two for the level amplifier. In order to *read* this circuit we must start at the top and zig-zag our way down.

The microphone input connects to a non-inverting amplifier having a gain of approximately 20. This can be bypassed by plugging something in the Line input socket; the jack contacts will disconnect the output of the first amplifier from the second. This is useful if you have something with a much higher input level than a microphone like a CD player.

The second stage amplifier has a fixed gain of about 100 but the 10K variable resistor can be used to turn down the input and so get a wide range of signals out of pin 8. This is coupled to the filter, the middle row of circuitry in Figure II.

First of all the 10K and 8K2 potential divider establish a DC level for the signal. Then the next two amplifiers act as a low pass filter. The output of this (pin 1) is fed into the positive voltage input of the A/D converter.

Again the DC level is restored to the midpoint using a pair of resistors. This also lowers the impedance of the input of the A/D, and I found this reduced interference picked up by the input.

The negative input of the converter should not be tied directly to the zero volts line but to about one volt above it. The converter only used the difference between the positive and negative inputs, and so the negative input must be tied to a

➤

low voltage.

However the operational amplifiers can't swing the signal over the whole range of the supply voltage, only about a volt of it. Therefore in order to maximise the range of the 8-bit A/D we must put this voltage input about one volt above zero volts. This is done with the 47K and 9K1 resistors.

By a similar argument the maximum signal voltage is only 4 volts and not the 5 volts of the supply. Therefore the converter's reference voltage must be placed at 4 volts in order to get the full range of conversion. We could use two resistors just like before but this input requires more current as it has a lower impedance.

This could be achieved by making the resistors have a lower value, while maintaining the ratio for the correct voltage. However, this also increases the current drawn, almost doubling it in fact. So instead I have used high value resistors and fed the reference input from a transistor used as an emitter follower.

Finally in order to bias the filter amplifiers properly we need a mid-voltage point or signal earth. This is achieved by using two 4K7 resistors and two 47uF decoupling capacitors.

The final major problem is that of a power supply. On the 8-bit machines this is no problem as there is 5 volts on the User Port. However on the Risc OS machines there is no such convenient source of power.

However you can tap the internal supply of the computer, this circuit draws about 5mA and so will be totally insignificant in its loading effect.

The simplest way is to use the 5 volts on the I2C bus we have been using over the last few months. If you just want the 5 volts and not the other signals it is very much easier.

There were various methods outlined in the May 91 issue. However if you have not got access to that issue then see the order form for a free summary.

If you feel that you don't want to mess about with the inside of your computer you can run the sampler off batteries. This will require a battery clip and a five volt regulator as well as a PP3 battery. The circuit is shown in Figure III.

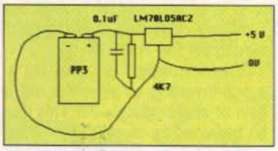


Figure III: Battery power supply

Finally it should be possible to extract the required amount of current from one of the printer signal pins. But when I tried this I couldn't get the supply free from noise which bled through and caused interference to the samples.

There are a number of different ways this circuit could be constructed. I could have made it plug in the back of the computer, but this would have inconvenienced users of the 8-bit machine. It would have also caused a lot of fiddling round the back of the computer and if your setup is like mine there is not much room back there.

What I have chosen to do is to use a 6 pin socket on the sampler board and make up a lead to the printer connector. If you regularly use this socket for a dongle or printer it's inconvenient having to scramble round the back, so there is an optional printer socket extender.

Finally all the parts are available as Body Build pack No. 76 – see the order form. Of course you can make a really great job of it and build it in a box, but that adds about 50% to the price.

Now, as I said there is not time this month to explain the software, but for those of you with a Risc OS machine and a subscription disc the sample software is there as a desktop Risc OS application.

It will sample sounds, play them back at different speeds and allow the loading and storing to disc. There are also some sound samples you can play back to illustrate the quality that can be obtained from the system.

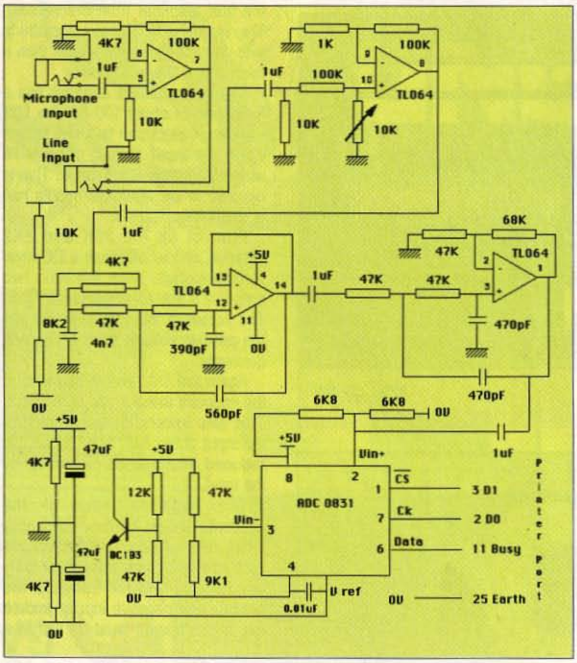


Figure II: The circuit of the sound sampler

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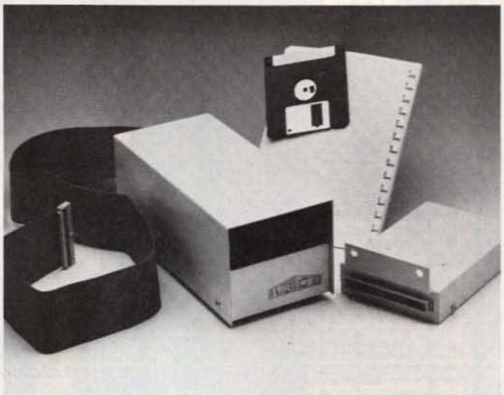

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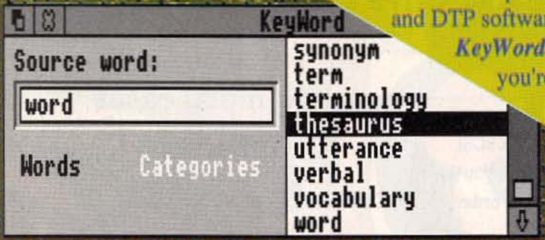
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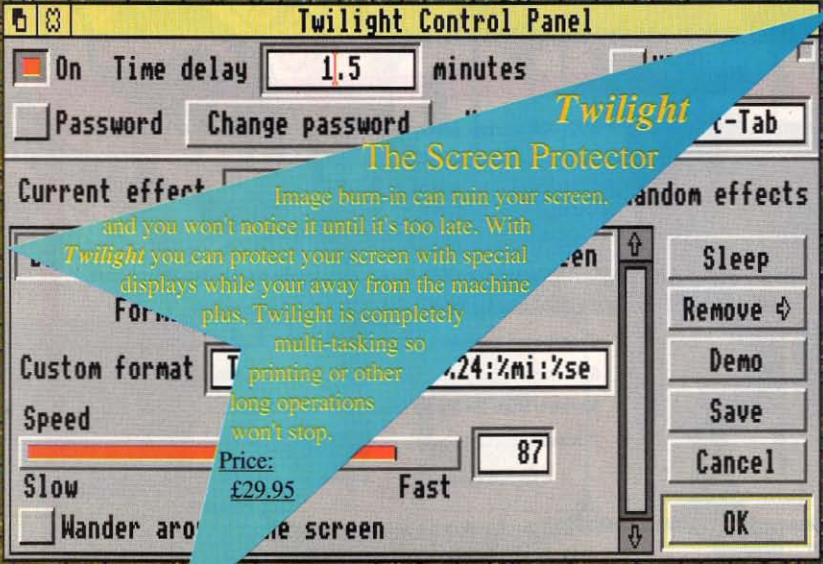
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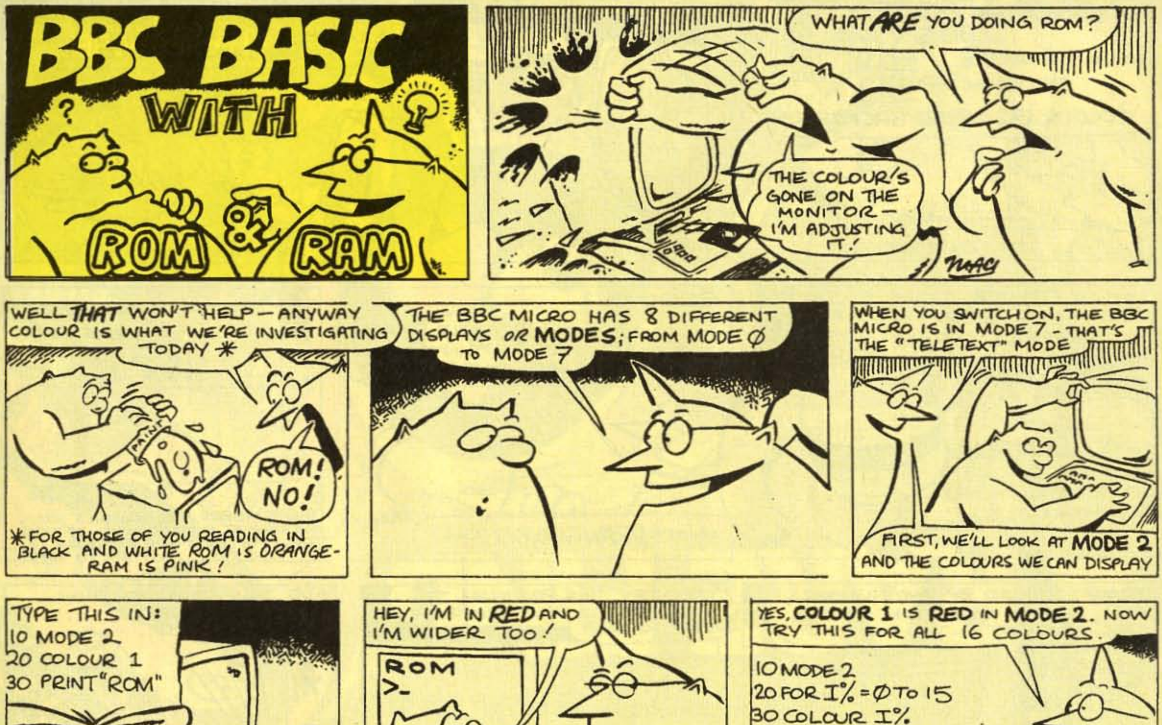
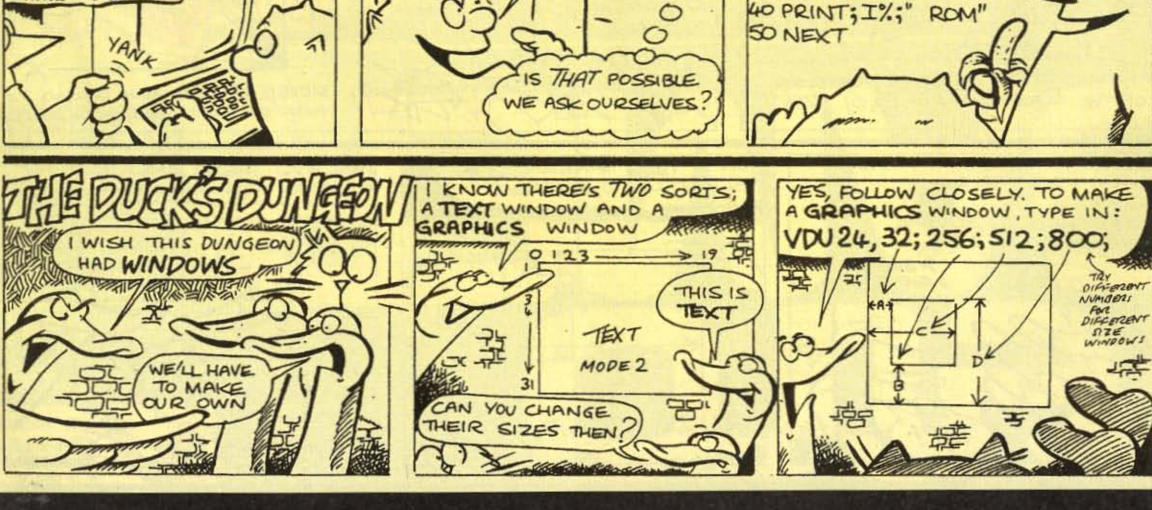

BBC BASIC WITH ROM & RAM
WHAT ARE YOU DOING ROM?
THE COLOUR'S GONE ON THE MONITOR — I'M ADJUSTING IT!
NAAC
WELL THAT WON'T HELP — ANYWAY COLOUR IS WHAT WE'RE INVESTIGATING TODAY *
PAINT
ROM! NO!
* FOR THOSE OF YOU READING IN BLACK AND WHITE ROM IS ORANGE - RAM IS PINK!
THE BBC MICRO HAS 8 DIFFERENT DISPLAYS OR MODES; FROM MODE 0 TO MODE 7
WHEN YOU SWITCH ON, THE BBC MICRO IS IN MODE 7 - THAT'S THE "TELETEXT" MODE
FIRST, WE'LL LOOK AT MODE 2 AND THE COLOURS WE CAN DISPLAY
TYPE THIS IN:
YANK
HEY, I'M IN RED AND I'M WIDER TOO!
IS THAT POSSIBLE WE ASK OURSELVES?
YES, COLOUR 1 IS RED IN MODE 2. NOW TRY THIS FOR ALL 16 COLOURS.

```
10 MODE 2
20 COLOUR 1
30 PRINT"ROM"
```

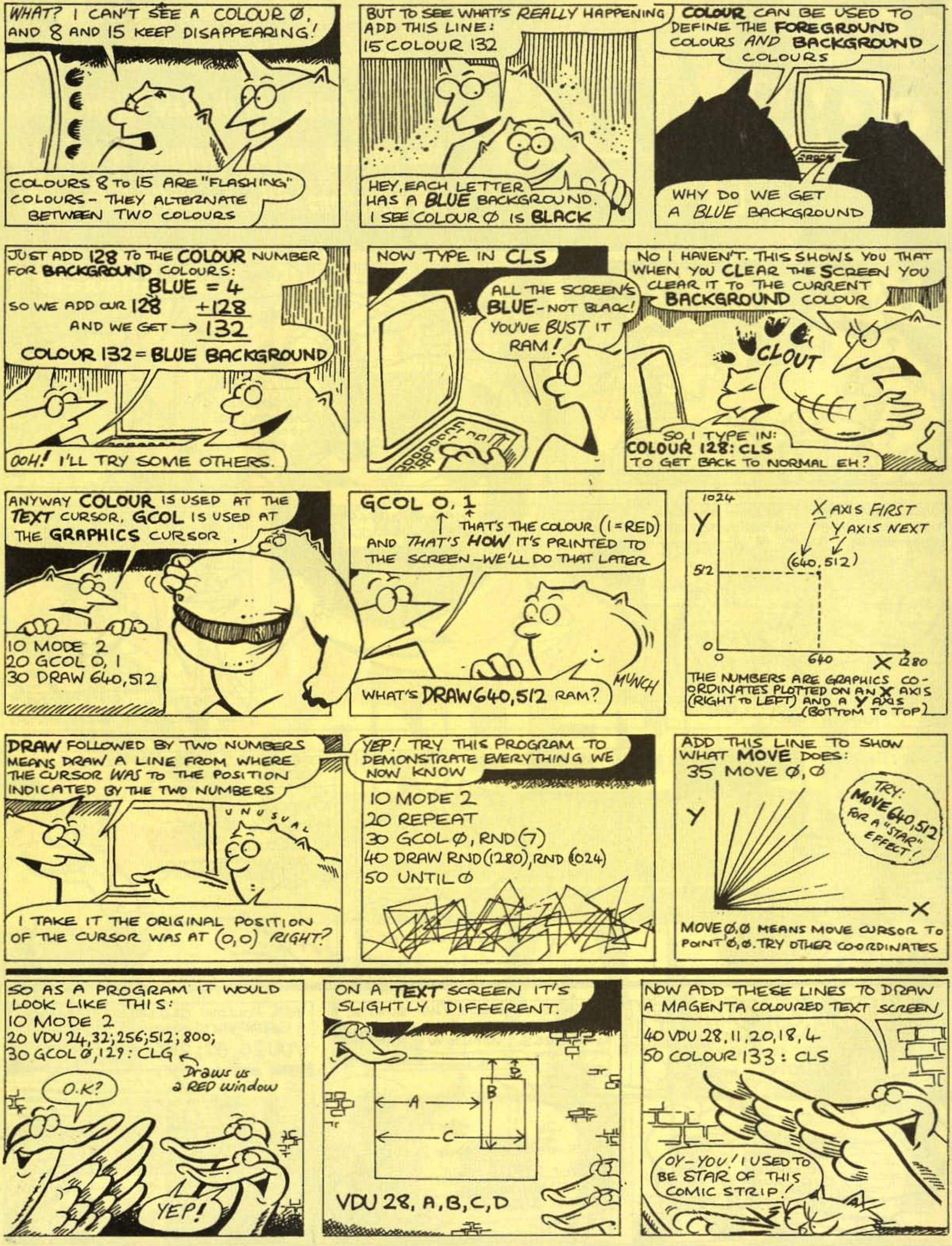
```
ROM
>_
```

```
10MODE 2
20 FOR I% = 0 TO 15
30 COLOUR I%
40 PRINT;I%;" ROM"
50 NEXT
```


THE DUCK'S DUNGEON
I WISH THIS DUNGEON HAD WINDOWS
WE'LL HAVE TO MAKE OUR OWN
I KNOW THERE'S TWO SORTS; A TEXT WINDOW AND A GRAPHICS WINDOW
0 1 2 3 → 19
1
3
4
31
THIS IS TEXT
TEXT
MODE 2
CAN YOU CHANGE THEIR SIZES THEN?
YES, FOLLOW CLOSELY. TO MAKE A GRAPHICS WINDOW, TYPE IN:
A
B
C
D
TRY DIFFERENT NUMBERS FOR DIFFERENT SIZE WINDOWS

```
VDU24,32;256;512;800;
```

LET'S COMPUTE!


WHAT? I CAN'T SEE A COLOUR 0, AND 8 AND 15 KEEP DISAPPEARING!
COLOURS 8 TO 15 ARE "FLASHING" COLOURS - THEY ALTERNATE BETWEEN TWO COLOURS
BUT TO SEE WHAT'S REALLY HAPPENING ADD THIS LINE:

```
15 COLOUR 132
```

HEY, EACH LETTER HAS A BLUE BACKGROUND. I SEE COLOUR 0 IS BLACK
COLOUR CAN BE USED TO DEFINE THE FOREGROUND COLOURS AND BACKGROUND COLOURS
WHY DO WE GET A BLUE BACKGROUND
JUST ADD 128 TO THE COLOUR NUMBER FOR BACKGROUND COLOURS:
BLUE = 4
SO WE ADD OUR 128 +128
AND WE GET → 132
COLOUR 132 = BLUE BACKGROUND
OOH! I'LL TRY SOME OTHERS.
NOW TYPE IN CLS
ALL THE SCREEN'S BLUE - NOT BLACK! YOU'VE BUST IT RAM!
NO I HAVEN'T. THIS SHOWS YOU THAT WHEN YOU CLEAR THE SCREEN YOU CLEAR IT TO THE CURRENT BACKGROUND COLOUR
CLOUT
SO, I TYPE IN: COLOUR 128: CLS TO GET BACK TO NORMAL EH?
ANYWAY COLOUR IS USED AT THE TEXT CURSOR, GCOL IS USED AT THE GRAPHICS CURSOR.

```
10 MODE 2
20 GCOL 0, 1
30 DRAW 640,512
```

GCOL 0, 1
THAT'S THE COLOUR (1=RED)
AND THAT'S HOW IT'S PRINTED TO THE SCREEN - WE'LL DO THAT LATER
WHAT'S DRAW 640,512 RAM?
MUNCH
1024
Y
X AXIS FIRST
Y AXIS NEXT
(640, 512)
512
0
640
X 1280
THE NUMBERS ARE GRAPHICS CO-ORDINATES PLOTTED ON AN X AXIS (RIGHT TO LEFT) AND A Y AXIS (BOTTOM TO TOP)
DRAW FOLLOWED BY TWO NUMBERS MEANS DRAW A LINE FROM WHERE THE CURSOR WAS TO THE POSITION INDICATED BY THE TWO NUMBERS
UNUSUAL
I TAKE IT THE ORIGINAL POSITION OF THE CURSOR WAS AT (0,0) RIGHT?
YEP! TRY THIS PROGRAM TO DEMONSTRATE EVERYTHING WE NOW KNOW

```
10 MODE 2
20 REPEAT
30 GCOL 0, RND(7)
40 DRAW RND(1280),RND(1024)
50 UNTIL 0
```

ADD THIS LINE TO SHOW WHAT MOVE DOES:

```
35 MOVE 0,0
```

TRY: MOVE 640,512 FOR A "STAR" EFFECT!
Y
X
MOVE 0,0 MEANS MOVE CURSOR TO POINT 0,0. TRY OTHER COORDINATES
SO AS A PROGRAM IT WOULD LOOK LIKE THIS:

```
10 MODE 2
20 VDU 24,32;256;512;800;
30 GCOL 0,129: CLG
```

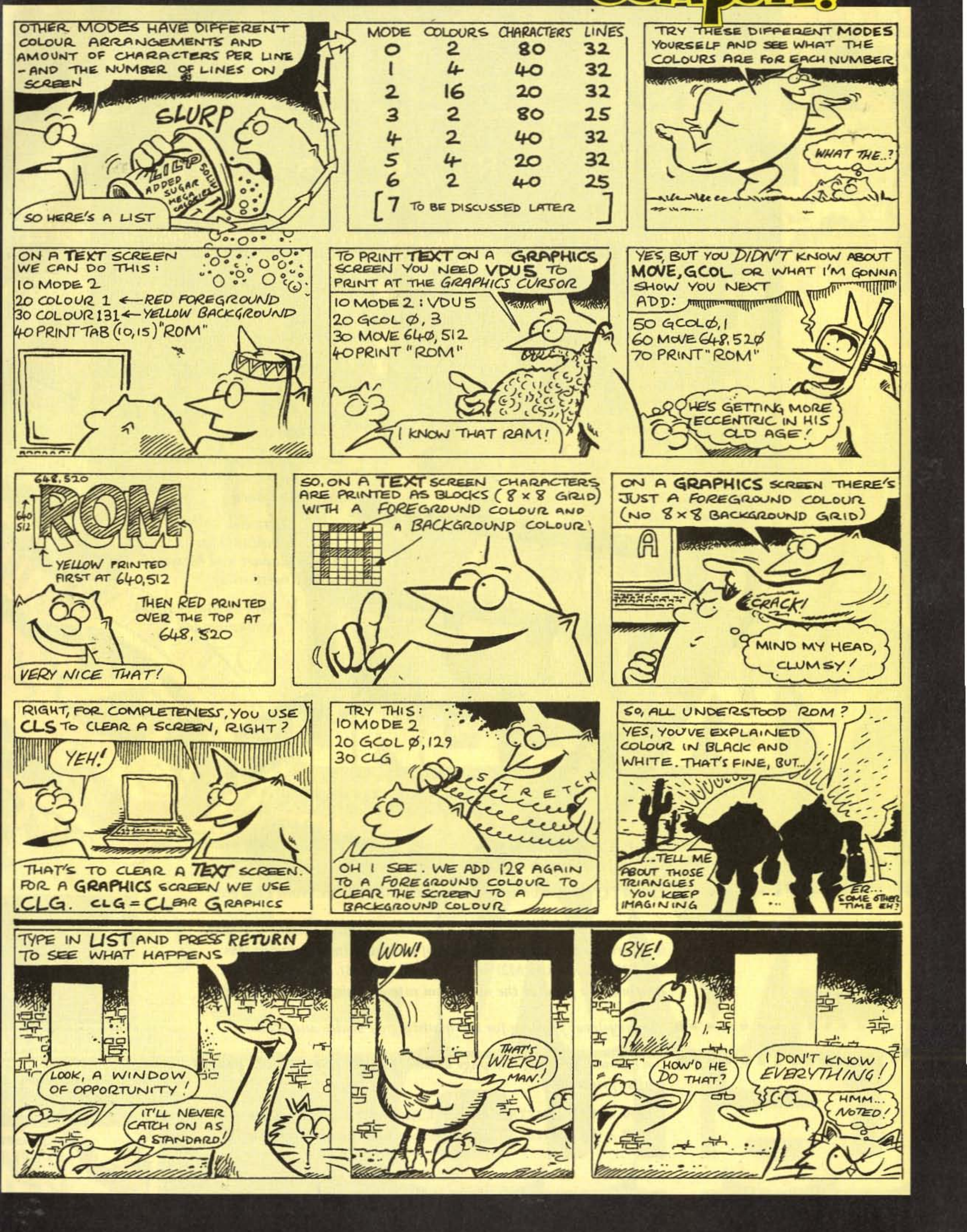
Draws us a RED window
O.K.?
YEP!
ON A TEXT SCREEN IT'S SLIGHTLY DIFFERENT.
D
B
A
C

```
VDU 28, A,B,C,D
```

NOW ADD THESE LINES TO DRAW A MAGENTA COLOURED TEXT SCREEN

```
40 VDU 28,11,20,18,4
50 COLOUR 133 : CLS
```

OY - YOU! I USED TO BE STAR OF THIS COMIC STRIP!


OTHER MODES HAVE DIFFERENT COLOUR ARRANGEMENTS AND AMOUNT OF CHARACTERS PER LINE - AND THE NUMBER OF LINES ON SCREEN
SLURP
LILP ADDED SUGAR MEGA CALORIES
SO HERE'S A LIST

MODE	COLOURS	CHARACTERS	LINES
0	2	80	32
1	4	40	32
2	16	20	32
3	2	80	25
4	2	40	32
5	4	20	32
6	2	40	25

[7 TO BE DISCUSSED LATER]

TRY THESE DIFFERENT MODES YOURSELF AND SEE WHAT THE COLOURS ARE FOR EACH NUMBER
WHAT THE..?
ON A TEXT SCREEN WE CAN DO THIS:

```
10 MODE 2
20 COLOUR 1 ←RED FOREGROUND
30 COLOUR131←YELLOW BACKGROUND
40PRINTTAB(10,15)"ROM"
```

TO PRINT TEXT ON A GRAPHICS SCREEN YOU NEED VDU5 TO PRINT AT THE GRAPHICS CURSOR

```
10 MODE 2 : VDU5
20 GCOL 0, 3
30 MOVE 640, 512
40PRINT "ROM"
```

I KNOW THAT RAM!
YES, BUT YOU DIDN'T KNOW ABOUT MOVE, GCOL OR WHAT I'M GONNA SHOW YOU NEXT
ADD:

```
50 GCOL0,1
60 MOVE 648,520
70 PRINT"ROM"
```

HE'S GETTING MORE ECCENTRIC IN HIS OLD AGE!
648,520
ROM
640
512
YELLOW PRINTED FIRST AT 640,512
THEN RED PRINTED OVER THE TOP AT 648,520
VERY NICE THAT!
SO, ON A TEXT SCREEN CHARACTERS ARE PRINTED AS BLOCKS (8 x 8 GRID) WITH A FOREGROUND COLOUR AND A BACKGROUND COLOUR
ON A GRAPHICS SCREEN THERE'S JUST A FOREGROUND COLOUR (NO 8 x 8 BACKGROUND GRID)
A
CRACK!
MIND MY HEAD, CLUMSY!
RIGHT, FOR COMPLETENESS, YOU USE CLS TO CLEAR A SCREEN, RIGHT?
YEH!
THAT'S TO CLEAR A TEXT SCREEN. FOR A GRAPHICS SCREEN WE USE CLG. CLG = CLEAR GRAPHICS
TRY THIS:

```
10 MODE 2
20 GCOL 0,129
30 CLG
```

STRETCH
OH I SEE. WE ADD 128 AGAIN TO A FOREGROUND COLOUR TO CLEAR THE SCREEN TO A BACKGROUND COLOUR
SO, ALL UNDERSTOOD ROM?
YES, YOU'VE EXPLAINED COLOUR IN BLACK AND WHITE. THAT'S FINE, BUT...
...TELL ME ABOUT THOSE TRIANGLES YOU KEEP IMAGINING
ER... SOME OTHER TIME EH?
TYPE IN LIST AND PRESS RETURN TO SEE WHAT HAPPENS
LOOK, A WINDOW OF OPPORTUNITY!
IT'LL NEVER CATCH ON AS A STANDARD!
WOW!
THAT'S WIERD MAN!
BYE!
HOW'D HE DO THAT?
I DON'T KNOW EVERYTHING!
HMM... NOTED!

LaserDirect

H i R e s 4

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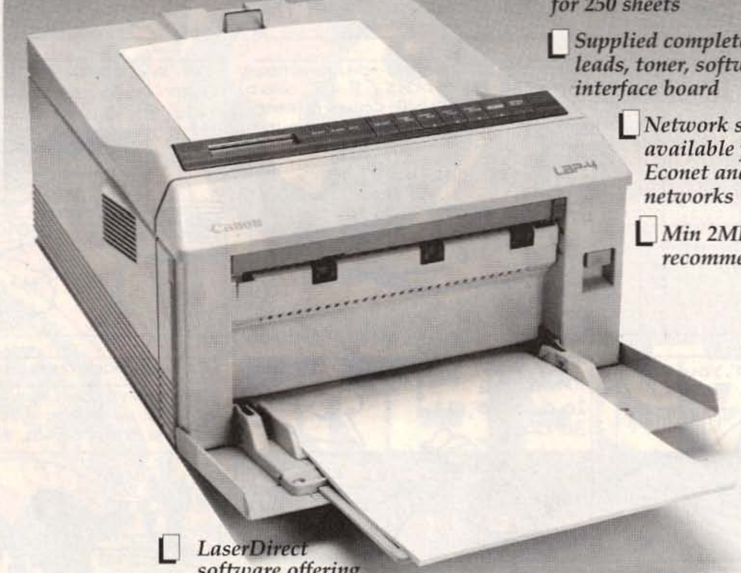

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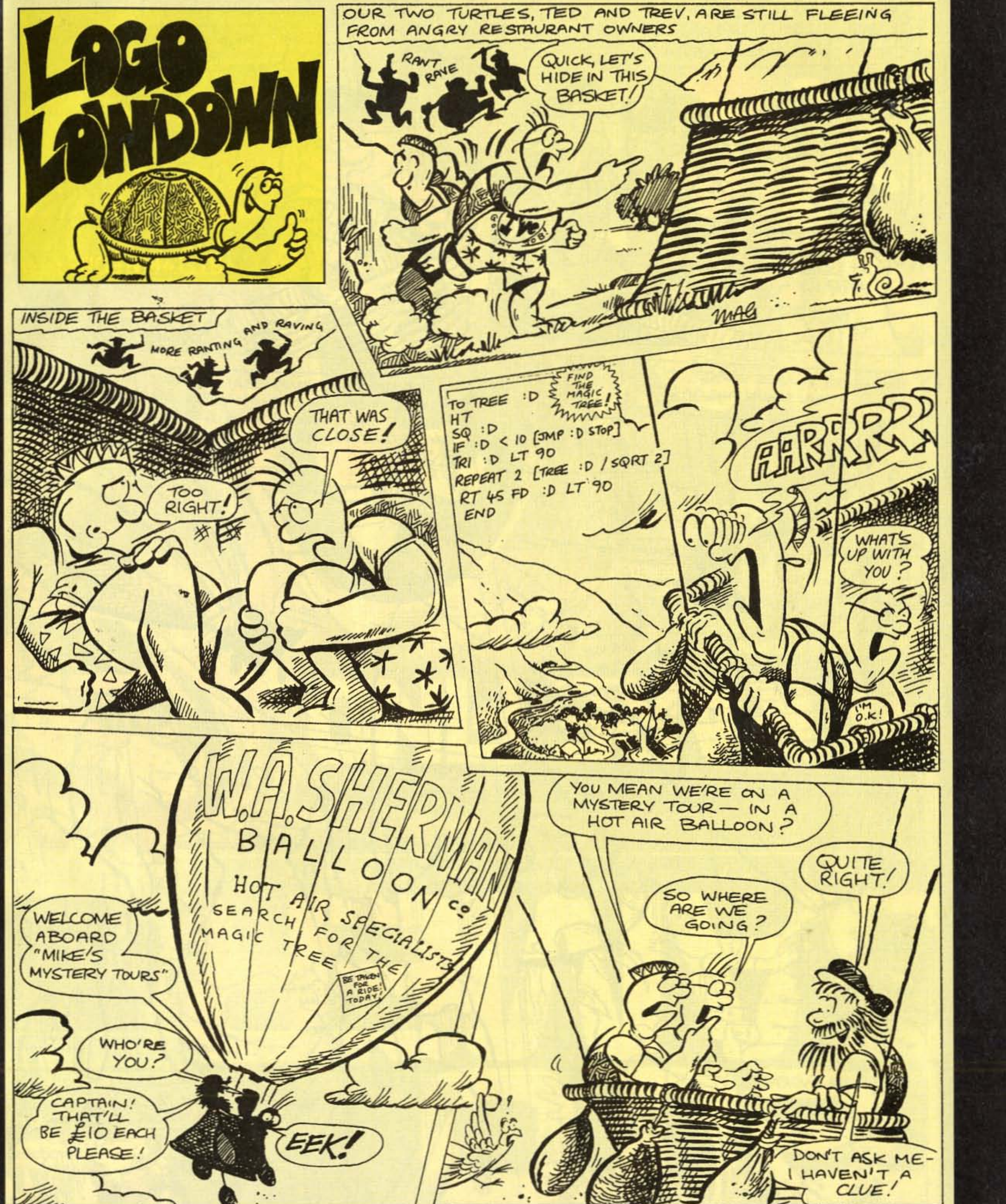
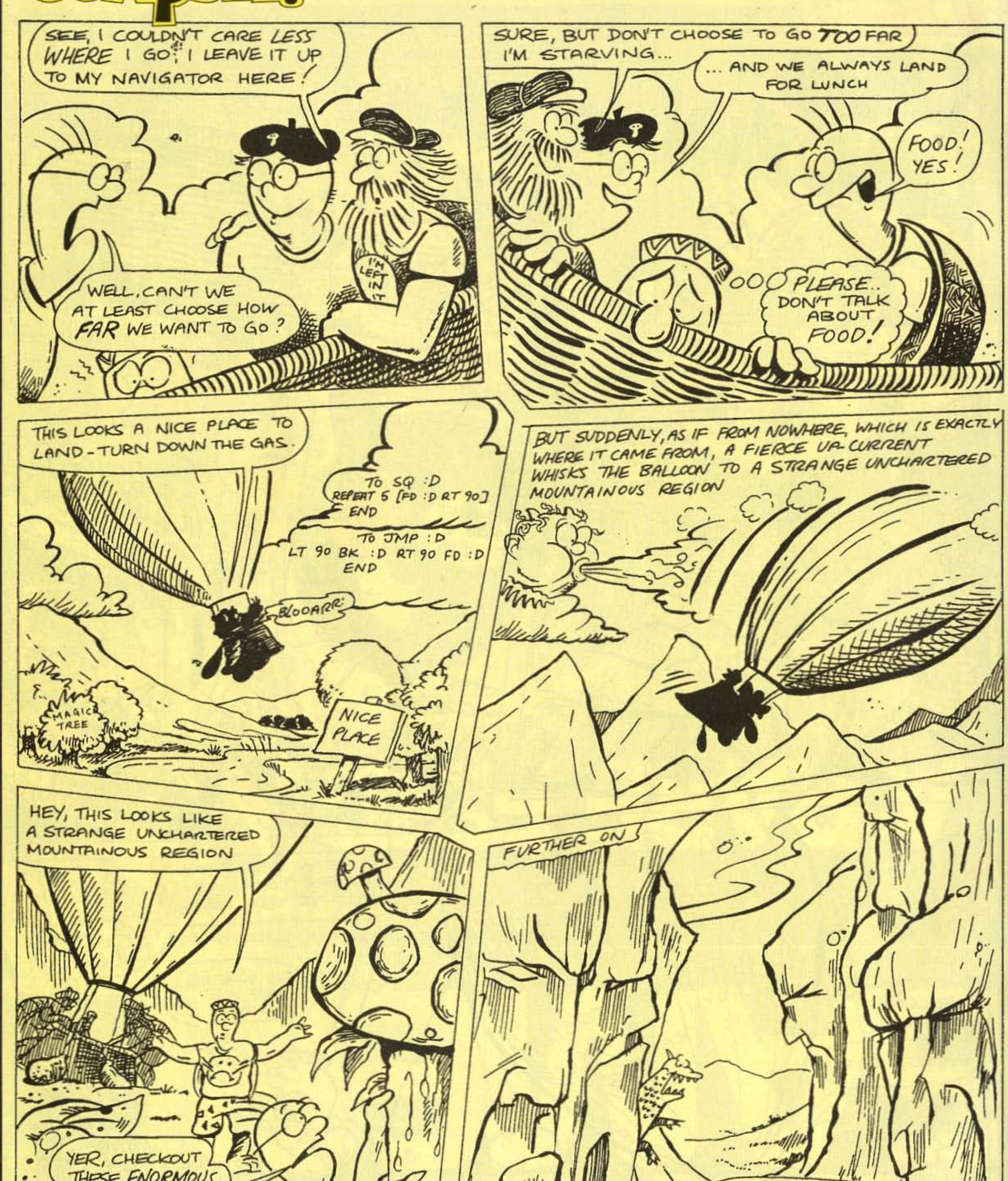
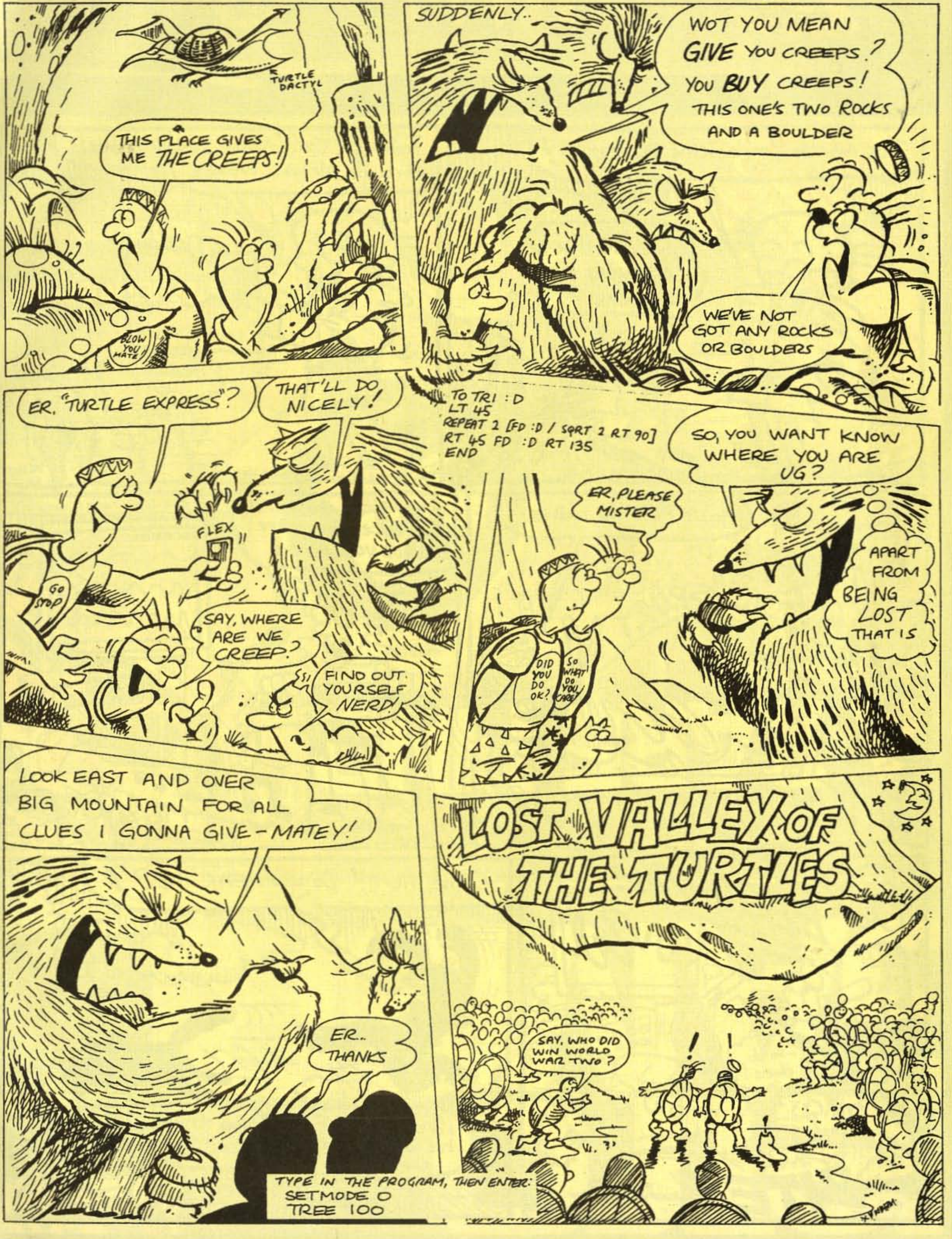

LOGO LOWDOWN
OUR TWO TURTLES, TED AND TREV, ARE STILL FLEEING FROM ANGRY RESTAURANT OWNERS
RANT
RAVE
QUICK, LET'S HIDE IN THIS BASKET!
MAG
INSIDE THE BASKET
MORE RANTING AND RAVING
THAT WAS CLOSE!
TOO RIGHT!
FIND THE MAGIC TREE!
AARRRR
WHAT'S UP WITH YOU?
I'M O.K!
W.A. SHERMAN BALLOON Co
HOT AIR SPECIALISTS
SEARCH FOR THE MAGIC TREE
BE TAKEN FOR A RIDE! TODAY!
WELCOME ABOARD "MIKE'S MYSTERY TOURS"
WHO'RE YOU?
CAPTAIN! THAT'LL BE £10 EACH PLEASE!
EEK!
YOU MEAN WE'RE ON A MYSTERY TOUR — IN A HOT AIR BALLOON?
QUITE RIGHT!
SO WHERE ARE WE GOING?
DON'T ASK ME - I HAVEN'T A CLUE!

```
TO TREE :D
HT
SQ :D
IF :D < 10 [JMP :D STOP]
TRI :D LT 90
REPEAT 2 [TREE :D / SQRT 2]
 RT 45 FD :D LT 90
 END
```

LET'S COMPUTE!


SEE, I COULDN'T CARE LESS WHERE I GO! I LEAVE IT UP TO MY NAVIGATOR HERE!
WELL, CAN'T WE AT LEAST CHOOSE HOW FAR WE WANT TO GO?
I'M LEFT IN IT
SURE, BUT DON'T CHOOSE TO GO TOO FAR I'M STARVING...
... AND WE ALWAYS LAND FOR LUNCH
FOOD! YES!
OOO PLEASE.. DON'T TALK ABOUT FOOD!
THIS LOOKS A NICE PLACE TO LAND - TURN DOWN THE GAS.
BLOOARR!
MAGIC TREE
NICE PLACE
BUT SUDDENLY, AS IF FROM NOWHERE, WHICH IS EXACTLY WHERE IT CAME FROM, A FIERCE UP-CURRENT WHISKS THE BALLOON TO A STRANGE UNCHARTERED MOUNTAINOUS REGION
HEY, THIS LOOKS LIKE A STRANGE UNCHARTERED MOUNTAINOUS REGION
YER, CHECKOUT THESE ENORMOUS PLANTS
FURTHER ON
HOW ABOUT THOSE FOR ROCK FACES!

```
TO SQ :D
REPEAT 5 [FD :D RT 90]
END
TO JMP :D
LT 90 BK :D RT 90 FD :D
END
```

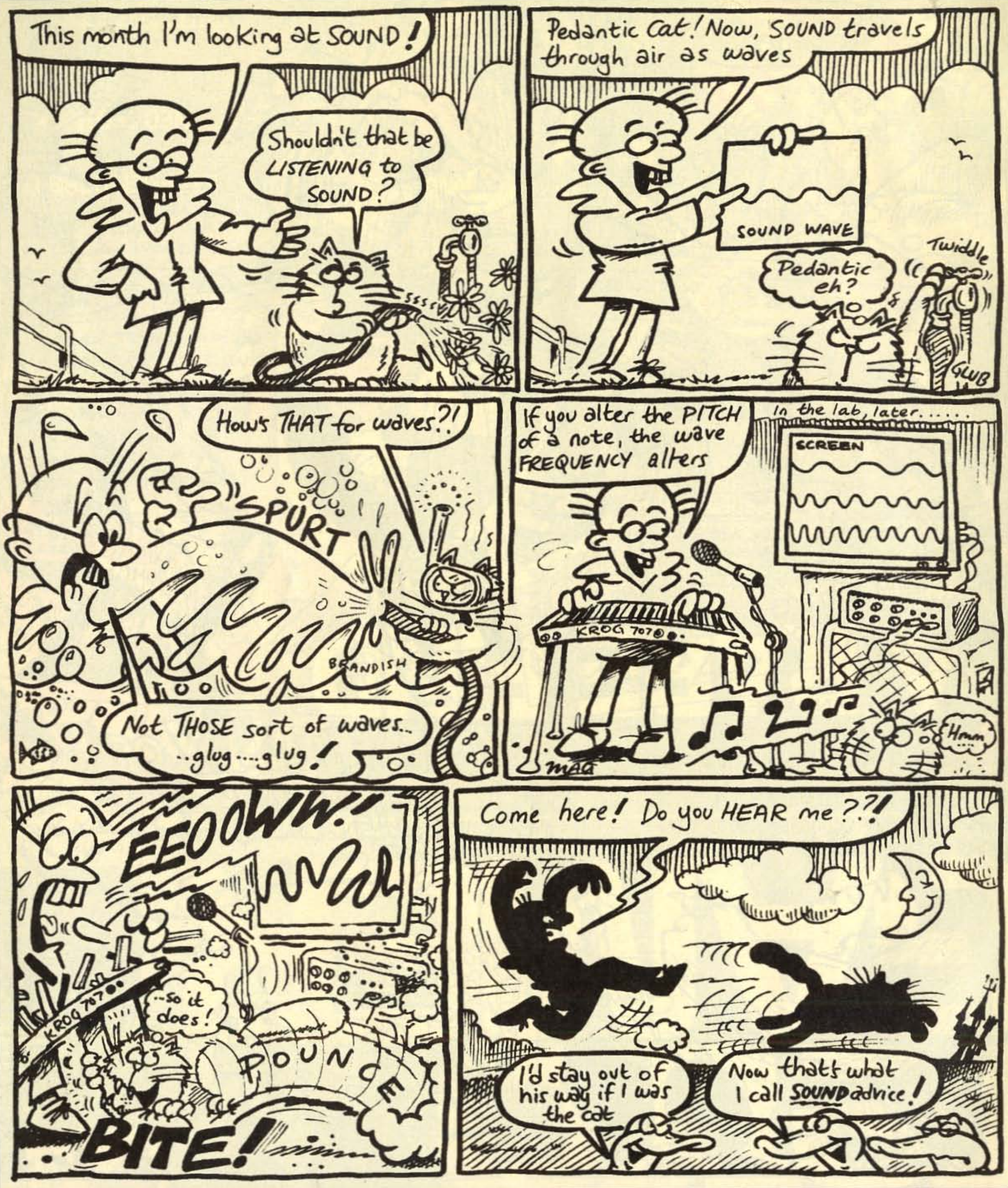

TURTLE DACTYL
THIS PLACE GIVES ME THE CREEPS!
BLOW YOU MATE
SUDDENLY..
WOT YOU MEAN GIVE YOU CREEPS? YOU BUY CREEPS! THIS ONE'S TWO ROCKS AND A BOULDER
WE'VE NOT GOT ANY ROCKS OR BOULDERS
ER, "TURTLE EXPRESS"?
THAT'LL DO NICELY!
FLEX
GO STOP
SAY, WHERE ARE WE CREEP?
FIND OUT YOURSELF NERD!
SO, YOU WANT KNOW WHERE YOU ARE UG?
ER, PLEASE MISTER
APART FROM BEING LOST THAT IS
DID YOU DO OK?
SO WHAT DO YOU CARE?
LOOK EAST AND OVER BIG MOUNTAIN FOR ALL CLUES I GONNA GIVE - MATEY!
ER.. THANKS
LOST VALLEY OF THE TURTLES
SAY, WHO DID WIN WORLD WAR TWO?
! !

```
TO TRI :D
LT 45
REPEAT 2 [FD :D / SQRT 2 RT 90]
RT 45 FD  :D RT 135
END
```

TYPE IN THE PROGRAM, THEN ENTER:

```
SETMODE 0
TREE 100
```

The Safe


This month I'm looking at SOUND!
Shouldn't that be LISTENING to SOUND?
SSSS
Pedantic Cat! Now, SOUND travels through air as waves
SOUND WAVE
Pedantic eh?
Twiddle
GLUB
How's THAT for waves?!
SPURT
BRANDISH
Not THOSE sort of waves.. ..glug....glug!
If you alter the PITCH of a note, the wave FREQUENCY alters
In the lab, later......
SCREEN
KROG 707
Hmm
MAG
EEOOWW!
KROG 707
..so it does!
POUNCE
BITE!
Come here! Do you HEAR me?!
I'd stay out of his way if I was the cat
Now that's what I call SOUND advice!

Scientist

SOUND MEASURES!

Hello again and welcome to another program which allows you to explore National Curriculum science. This month we've turned our attention to sound – to be more precise, pitch and frequency. Apart from the obvious sounds, this program uses real graphics as well.

I expect you know that sound travels through the air as waves. You may also be aware that different pitches of note produce waves with different frequencies.

What this program does is play a note and display a snapshot of its wave on the screen. As the program stands, the screen displays about one 40th of a second of the wave. It may, of course, take a longer time to actually draw the wave, particularly on an Electron.

The length of the wave displayed can be altered by changing line 250. Instead of N=N+5 try N=N+1. This will show much more of the wave but will take longer to draw. Archimedes or A3000 users may like to try N=N+0.1. This will show more detail. BBC users could run the program in Mode 0 (change line 40).

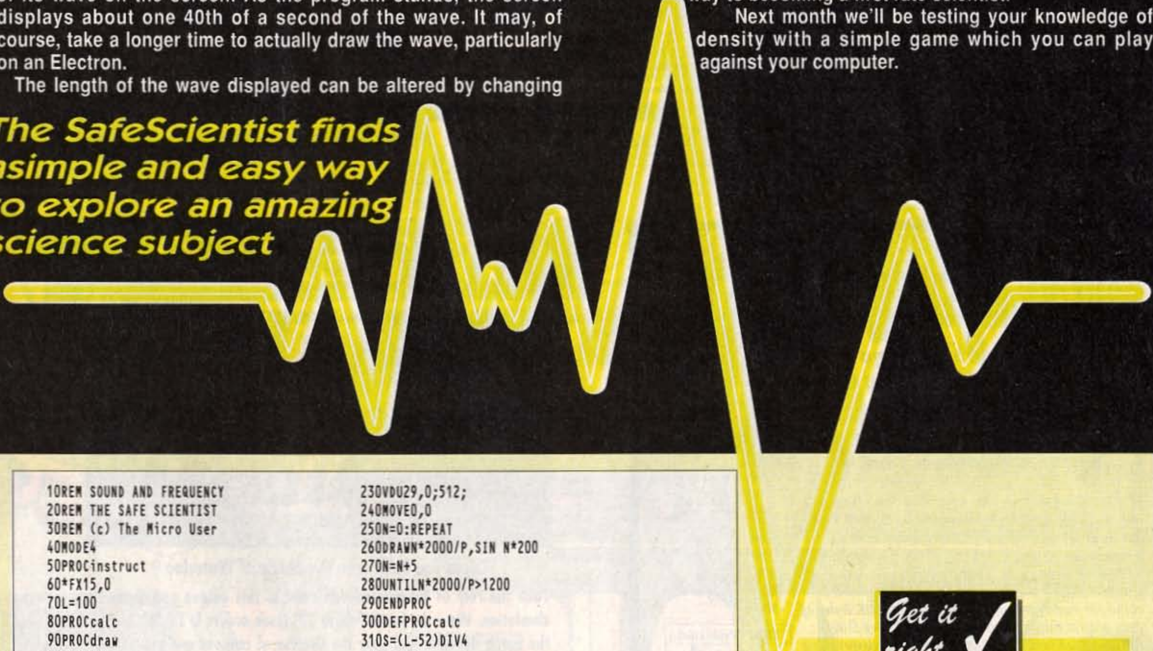
Like most Safe Scientist programs, this offers no answers. You can use it to investigate the way in which pitch and frequency change. What, for example, happens to the pitch of a note if you double the frequency? You might try counting the waves on the screen to help.

How on earth do computer frequencies tie up with true ones? A quick answer to that is not easy and that explains some of the rather complex maths within the program.

You, though, don't have to worry about that. Type it in, save it and use it to investigate sound. In the original science National Curriculum there is a whole attainment target on sound and music so this is seen as a very important area. And of course, if you set yourself investigations to carry out you are well on the way to becoming a first rate scientist.

Next month we'll be testing your knowledge of density with a simple game which you can play against your computer.

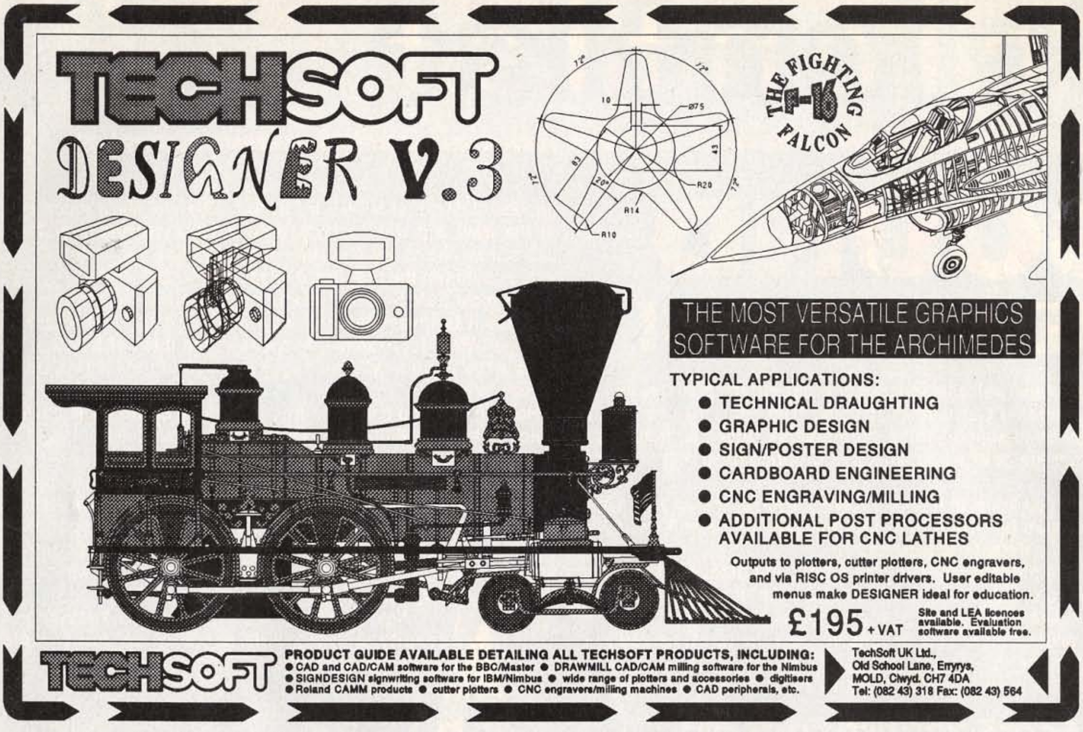
The SafeScientist finds asimple and easy way to explore an amazing science subject



```
   10REM SOUND AND FREQUENCY
   20REM THE SAFE SCIENTIST
   30REM (c) The Micro User
   40MODE4
   50PROCinstruct
   60*FX15,0
   70L=100
   80PROCcalc
   90PROCdraw
  100REPEAT
  110IF INKEY-104 AND L<244
L=L+4:PROCcalc:PROCdraw
  120IF INKEY-103 AND L>52 L=L-
4:PROCcalc:PROCdraw
  130IF INKEY-66 AND L<200
L=L+48:PROCcalc:PROCdraw
  140IF INKEY-98 AND L>99 L=L-
48:PROCcalc:PROCdraw
  150SOUND1,-15,L,10
  160TIME=0:REPEATUNTILTIME>50
  170UNTIL0
  180RUN
  190DEFPROCdraw
  200CLS
  210PRINTTAB(2,2)"Computer pitch = ";L
  220PRINTTAB(4,4)"Real pitch = ";P%
  230VDU29,0;512;
  240MOVE0,0
  250N=0:REPEAT
  260DRAWN*2000/P,SIN N*200
  270N=N+5
  280UNTILN*2000/P>1200
  290ENDPROC
  300DEFPROCcalc
  310S=(L-52)DIV4
  320P=128
  330FORN=1 TO S
  340P=P*2^(1/12)
  350IF L=52 P=128
  360P%=P
  370NEXT
  380ENDPROC
  390DEFPROCinstruct
  400PRINTTAB(6,2)"SOUND AND
FREQUENCY"TAB(6,3)"--------------------"
  410PRINT''"Use > to increase the pitch"''"and < to
decrease the pitch by semitones"
  420PRINT''"Use A to increase the pitch"''"and Z to
decrease the pitch by octaves"
  430PRINTTAB(2,20)"Press Space to continue"
  440REPEATUNTILINKEY-99
  450ENDPROC
```

Get it right ✓

```
 10 =    0 0   160 = 45FE 7   310 = C41D 7
 20 =    0 0   170 = 53CE 1   320 = 2664 5
 30 =    0 0   180 = 7E36 6   330 = 9C38 4
 40 = BA9F F   190 = 8202 C   340 = D826 A
 50 = 645E 1   200 = 7A16 E   350 = A045 3
 60 = 6C86 4   210 = D8E8 0   360 = 3131 C
 70 = 4E7F 6   220 = 97CB F   370 = 2C83 9
 80 =  702 0   230 = A1D4 C   380 = EDOF 8
 90 = 68F5 3   240 = 7BA5 B   390 = EEDD C
100 = BFBA 9   250 = 5BEE B   400 = 98E7 2
110 = 9E1A B   260 = 5705 1   410 = 8CEF A
120 = 4376 9   270 = 71E9 F   420 =  FAC 9
130 = 52D1 0   280 = 3277 9   430 = 2E8B 5
140 = 4BEB 6   290 = EDOF 1   440 = DD9E F
150 = E83B 1   300 = EDF5 D   450 = EDOF 3
```



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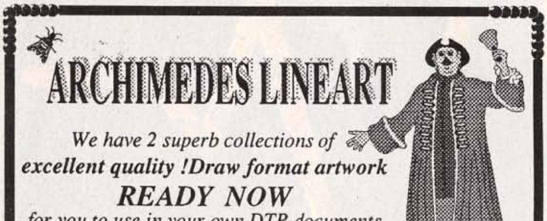

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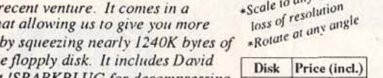

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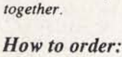

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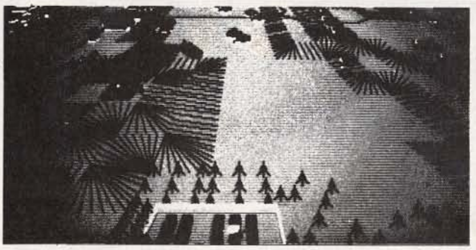

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SANTA'S SLIP UP

This year Santa has decided to invest in new technology and automate his delivery system. Unfortunately, his computer has gone haywire and scattered the parcels all over town.

So it's up to you, as Santa, to run round and collect them. When you've got a sackload deliver them to the nearby house.

There are four listings. Three are for the game, and the other is a screen designer. Listing I contains the sprite data. Type it in and ensure it is correct, using the checksums. Save, then run it.

This will generate a data file called Code containing the sprite data. Corruption on the screen occurs as the code is assembled into the screen memory, and is nothing to worry about.

Listing II is a short program that simply changes PAGE on the micro and loads the main game: Listing III, which sits in memory at PAGE=&2200.

This is necessary because the sprite data occupies the normal place in memory for a Basic program.

Type the game in exactly as shown, including the colons between the DATA statements at the end.

Screen Designer

Subscribers who receive the monthly disc will find on it listing IV, the Screen Designer. When you run it you will be faced with a blank screen and reference numbers along the edge. The table is a summary of commands – select one and follow the on-screen prompts. The computer will normally need X and Y co-ordinates or a level number.

You need to select the finishing position using < or > and to block off one side of the house – using a snowman for example – to make it obvious which side the finishing position is on.

Once you've finished your design press F. The computer will ask you which screen you would like it to be, so you should enter a number from one to five. Then enter the filename under which to save the screen.

The first two characters are a reminder of the screen number – S1 for screen one and so on. You can add another eight characters if you're using cassette or ADFS, otherwise you can add a maximum of five. The screen data will then be spooled to tape or disc.

To load your new screen, load the main game and type:

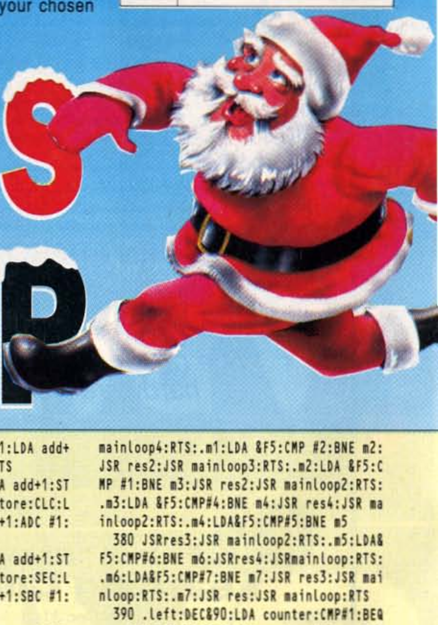
```
*EXEC "S1name"
```

using the filename of your chosen screen. Once it's loaded your screen will be ready to play, so run the game.

Don't forget to save the program with the new screens before you switch off.

Screen Designer controls

Key	Action
L	Place Level
B	Place Snowball
R	Place Moving Snowball
M	Place Snowman
S	Place Start Position
P	Place Parcel
H	Place House
E	Place Moving Platform
C	Clear
>	Finish right



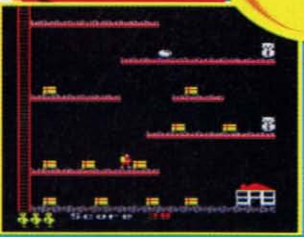
```
   10 REM Santa's Slip-Up!
   20 REM Sprite Data
   30 REM Listing I
   40 REM By Oliver Bishop
   50 REM (c) The Micro User
   60 :
   70 number=&1D00
   80 MODE6:*FX16
   90 CLS:VDU 23;8202;1;0;0;0;
  100 PROCassemble
  110 PRINTTAB(1,10);"*SAVE ""code"" 600
0 ";~O%
  120 PRINT '"Copy this line, then press
 Return."
  130 END
  140 DEF PROCassemble
  150 osbyte=&FFF4:add=&70:new=&72:temp=
&74:rows=&76:temprows=&77:columns=&78:co
unter=&79:work=&7A:de=&7B
  160 FOR pass=4 TO 6 STEP 2
  170 P%=number
  180 O%=&6000
  190 [ OPT pass
  200 LDA#0:STA&90:STA&91
  210 LDA #0:STA counter
  220 .mainloop:LDA add:STA new:LDA add+
1:STA new+1:LDX #2:LDY #16:JSR store
  230 LDA #sprite MOD256:STA sdata+1:LDA
 #sprite DIV256:STA sdata+2:LDA add:STA
new:LDA add+1:STA new+1:LDX #2:LDY #16:J
SR print:RTS
  240 .mainloop2:LDA add:STA new:LDA add
+1:STA new+1:LDX #2:LDY #16:JSR store:LD
A #sprite2 MOD256:STA sdata+1:LDA #sprit
e2 DIV256:STA sdata+2:LDA add:STA new:LD
A add+1:STA new+1:LDX #2:LDY #16:JSR pri
nt:RTS
  250 .mainloop3:LDA add:STA new:LDA add
+1:STA new+1:LDX #2:LDY #16:JSR store:LD
A #sprite3 MOD256:STA sdata+1:LDA #sprit
e3 DIV256:STA sdata+2:LDA add:STA new:LD
A add+1:STA new+1:LDX #2:LDY #16:JSR pri
nt:RTS
  260 .mainloop4:LDA add:STA new:LDA add
+1:STA new+1:LDX #2:LDY #16:JSR store:LD
A #sprite4 MOD256:STA sdata+1:LDA #sprit
e4 DIV256:STA sdata+2:LDA add:STA new:LD
A add+1:STA new+1:LDX #2:LDY #16:JSR pri
nt:RTS
  270 JSR &FFE0:LDA #4:SEI:.frame:BIT &F
E00:BEQ frame:CLI:.res:LDA add:STA new:L
DA add+1:STA new+1:LDX #2:LDY #16:JSR re
store:CLC:LDA add:ADC #8:STA add
  280 BCC main1:INC add+1:.main1:RTS
  290 .res2:LDA add:STA new:LDA add+1:ST
A new+1:LDX #2:LDY #16:JSR restore:SEC:L
DA add:SBC #8:STA add:BCS main1:LDA add+
1:CLC:SBC#0:STA add+1:.main1:RTS
  300 .res3:LDA add:STA new:LDA add+1:ST
A new+1:LDX #2:LDY #16:JSR restore:CLC:L
DA add:ADC #64:STA add:LDA add+1:ADC #1:
STA add+1:RTS
  310 .res4:LDA add:STA new:LDA add+1:ST
A new+1:LDX #2:LDY #16:JSR restore:SEC:L
DA add:SBC #64:STA add:LDA add+1:SBC #1:
STA add+1:RTS
  320 .restore:STX columns:STY rows:LDX
#0:LDY #0:LDA new:STA temp:LDA new+1:STA
 temp+1:.loop1:LDA rows:STA temprows:.lo
op2:LDA back,X:STA (new),Y:INX:LDA new:A
ND #7:CMP #7:BEQ rbottom
  330 INC new:BNE rnext:INC new+1:JMP rn
ext:.rbottom:LDA new:ADC #&38:STA new:LD
A new+1:ADC #1:STA new+1:.rnext:DEC temp
rows:BNE loop2:LDA temp:ADC #8:STA new:S
TA temp:LDA temp+1:ADC #0
  340 STA new+1:STA temp+1:DEC columns:B
NE loop1:RTS
  350 .right:INC&90:LDA counter:CMP#1:BE
Qover:LDA#0:STA&F5:INCcounter:JSRman:RTS
:.over:LDA#3:STA&F5:LDA#0:STA counter:JS
Rman:RTS
  360 .man:LDA#19:JSR osbyte
  370 LDA &F5:CMP #3:BNE m1:JSR res:JSR
mainloop4:RTS:.m1:LDA &F5:CMP #2:BNE m2:
JSR res2:JSR mainloop3:RTS:.m2:LDA &F5:C
MP #1:BNE m3:JSR res2:JSR mainloop2:RTS:
.m3:LDA &F5:CMP#4:BNE m4:JSR res4:JSR ma
inloop2:RTS:.m4:LDA&F5:CMP#5:BNE m5
  380 JSRres3:JSR mainloop2:RTS:.m5:LDA&
F5:CMP#6:BNE m6:JSRres4:JSRmainloop:RTS:
.m6:LDA&F5:CMP#7:BNE m7:JSR res3:JSR mai
nloop:RTS:.m7:JSR res:JSR mainloop:RTS
  390 .left:DEC&90:LDA counter:CMP#1:BEQ
over2:LDA#1:STA&F5:INCcounter:JSRman:RTS
:.over2:LDA#2:STA&F5:LDA#0:STA counter:J
SRman:RTS
  400 .up:INC&91:LDA&F5:CMP#7:BEQover3:L
DA&F5:CMP#0:BEQover3:LDA&F5:CMP#3:BEQove
r3:LDA&F5:CMP #6:BEQover3:LDA#4:STA&F5:J
SRman:RTS:.over3:LDA#6:STA&F5:JSRman:RTS

  410 .down:DEC&91:LDA&F5:CMP#6:BEQover4
:LDA&F5:CMP#0:BEQover4:LDA&F5:CMP#3:BEQo
ver4:LDA&F5:CMP #7:BEQover4:LDA#5:STA&F5
:JSRman:RTS:.over4:LDA#7:STA&F5:JSRman:R
TS
  420 .store:STX columns:STY rows:LDX #0
:LDY #0:LDA new:STA temp:LDA new+1:STA t
emp+1:.loop1:LDA rows:STA temprows:.loop
2:LDA (new),Y:STA &7E:STA back,X:INX:LDA
 new:AND #7:CMP #7
```

```
   10 REM Listing II
   20 REM (c) The Micro User
   30 PAGE=&2200
   40 CHAIN "listIII"
```

10 =   0 0
20 =   0 0
30 = BC12 2
40 = 5FEF 7

Get it right ✓



```
   10 REM Santa's Slip - Up!
   20 REM Listing III
   30 REM by Oliver Bishop
   40 REM (c) The Micro User
   50 :
   60 *LOAD code 1D00
   70 *KEY10PAGE=&2200|MOLD|M
   80 left=&1F04:right=&1E7F:down=&1F4C:
up=&1F22
   90 ON ERROR IF ERR<>17 MODE 6:PROCerr
 ELSE sc%=0:GOTO 300
  100 DIE=FALSE:DEAD=FALSE:bonus=1100:P=
5:DIR=TRUE:HOUSE=FALSE:sc%=0:EE=0:screen
=0:lives=3:R=TRUE:pl=0:FALL=FALSE:DD=0:S
TART=FALSE:smash=TRUE
  110 PROCinit:PROCinit2:MODE6:PROCinsts
:GOTO280
  120 :
  130 DEF PROCinit:IF DIE=TRUE THEN ENDP
ROC
  140 ENVELOPE1,2,1,1,1,-5,1,1,126,0,0,-
126,126,126
  150 ENVELOPE2,2,1,2,1,2,1,2,126,0,0,-1
26,126,126
  160 ENVELOPE3,1,2,-2,1,1,1,1,126,0,0,-
126,126,126
  170 VDU23,224,128,69,170,85,170,85,162
,1,23,225,28,22,62,28,8,30,63,127,23,226
,123,123,62,28,24,0,24,56,23,227,56,104,
124,56,16,120,252,254,23,228,222,222,124
,56,24,0,24,28,23,229,223,223,223,0,223,
223,223,223
  180 VDU 23,230,60,102,251,253,253,255,
126,60,23,231,0,28,28,31,31,31,127,255,2
3,232,60,126,255,255,255,255,255,255,23,
233,0,0,128,224,240,252,254,255,23,234,2
55,255,129,129,129,129,255,255
  190 VDU 23,235,255,129,129,129,255,255
,255,255,23,236,255,129,129,129,161,129,
129,129,23,237,189,255,126,255,219,255,1
02,60,23,238,255,231,255,231,255,231,126
,60,23,241,123,115,38,60,24,130,230,199
  200 VDU 23,242,60,110,94,94,126,126,20
3,16,23,243,0,0,0,0,85,170,255,255,23,24
4,85,170,85,170,85,170,85,170,23,245,128
,69,170,85,170,69,2,0,23,246,129,255,129
,129,129,255,129,129
  210 VDU 23,247,255,255,255,255,0,0,0,0
,23,248,222,206,100,60,24,193,231,131
  220 left$=CHR$(225)+CHR$(8)+CHR$(10)+C
HR$(226):plat$=STRING$(4,CHR$224):righ$=
CHR$(227)+CHR$(8)+CHR$(10)+CHR$(228):lif
t$=CHR$(224)+CHR$(224)
  230 man$=righ$:snowman$=CHR$(237)+CHR$
(8)+CHR$(10)+CHR$(238):ladder$=CHR$(246)
:blan$=" "+CHR$(8)+CHR$(10)+" "
  240 roof$=CHR$(231)+CHR$(232)+CHR$(233
):wind$=CHR$(234)+CHR$(234)+CHR$(234):do
or$=CHR$(235)+CHR$(236)+CHR$(235)
  250 house$=wind$+CHR$(8)+CHR$(8)+CHR$(
8)+CHR$(10)+door$
  260 ENDPROC
  270 :
  280 MODE 5
  290 GOTO310
  300 MODE6:VDU 23;8202;0;0;0;:PROCtable
:MODE5
  310 VDU 23;8202;0;0;0;
  320 COLOUR3:PRINTTAB(17,20);house$
  330 COLOUR1:PRINTTAB(17,19);roof$
  340 ?&70=&7178 MOD256:?&71=&7178 DIV 2
56:CALL&1D00
  350  VDU5:GCOL0,3:MOVE 320,700:PRINT "
Get Ready!":GCOL 0,1:MOVE320,696:PRINT "
Get Ready!":VDU4:PROCtune:EE=0
  360 COLOUR7:PROCdraw:GOTO630
  370 DEF PROCdraw:bonus=1100:IF DEAD TH
EN ENDPROC
  380 CLS:EE=0:HOUSE=FALSE:COLOUR7
  390 IF screen>5 THEN PROClights
  400 *FX9,7
  410 *FX10,20
  420 :
  430 scr=screen MOD 6:IF screen>11 THEN
 plat$=" "+STRING$(2,CHR$224) ELSE plat$
=STRING$(4,CHR$224)
  440 VDU 23,245,128,69,170,85,170,69,2,
0
  450 VDU 19,3,7,0,0,0
  460 PROCcls
  470 PRINTTAB(4,29);"Score":PROCupdate
  480 REM  Note the next line number
  490  IF scr=0 THEN RESTORE 3790:PSTA=1
:PSTO=-2:PLEV=0:ST=9:STO=17:LL=7:S=10:mx
%=2:my%=1:FF=16:GG=26:hx%=17:hy%=25:PROC
screen
  500  IF scr=1 THEN RESTORE 3890:PSTA=5
:PSTO=13:PLEV=8:ST=9:STO=13:LL=17:S=10:m
x%=12:my%=1:FF=16:GG=26:hx%=17:hy%=25:PR
```

➤

```
  430 BEQ sbottom:INC new:BNE snext:INC
new+1:JMP snext:.sbottom:LDA new:ADC #&3
8:STA new:LDA new+1:ADC #1:STA new+1:.sn
ext:DEC temprows:BNE loop2:LDA temp:ADC
#8:STA new
  440 STA temp:LDA temp+1:ADC #0:STA new
+1:STA temp+1:DEC columns:BNE loop1:RTS:
.print:STX columns:STY rows:LDX #0:LDY #
0:LDA new:STA temp:LDA new+1:STA temp+1:
.loop1:LDA rows:STA temprows
  450 .loop2:LDA (new),Y:STA work:ASL wo
rk:ASL work:ASL work:ASL work:LSR A:LSR
A:LSR A:LSR A:ORA work:ORA (new),Y:EOR #
&FF:.sdata:AND &3000,X:ORA (new),Y:STA (
new),Y:INX:LDA new:AND #7
  460 CMP #7:BEQ pbottom:INC new:BNE pne
xt:INC new+1:JMP pnext:.pbottom:LDA new:
ADC #&38:STA new:LDA new+1:ADC #1:STA ne
w+1:.pnext:DEC temprows:BNE loop2:LDA te
mp:ADC #8:STA new:STA temp:LDA temp+1:AD
C #0
  470 STA new+1:STA temp+1:DEC columns:B
NE loop1:RTS
  480 .back
  490 EQUS STRING$(4*32,CHR$(0))
  500 OPT FNdata
  510 ]
  520 NEXT
  530 ENDPROC
  540 DEF FNdata
  550 sprite=P%
  560 RESTORE
  570 FOR i=1 TO 2*16 STEP 4
  580 READ a$
  590 [ OPT pass
  600 EQUD EVAL("&"+a$)
  610 ]
  620 NEXT
  630 sprite2=P%:RESTORE680:FOR i=1 TO 2
*16 STEP 4:READ a$:[ OPT pass:EQUD EVAL(
"&"+a$):]:NEXT
  640 sprite3=P%:RESTORE690:FOR i=1 TO 2
*16 STEP 4:READ a$:[ OPT pass:EQUD EVAL(
"&"+a$):]:NEXT
  650 sprite4=P%:RESTORE700:FOR i=1 TO 2
*16 STEP 4:READ a$:[ OPT pass:EQUD EVAL(
"&"+a$):]:NEXT
  660 =pass
  670 DATA 51110147,E1E1E1E1,743F1E1,CC0
C0C04,CC880800,E0E0C00,80CCC0E,EE0C0C08
  680 DATA 77330301,F0F0701,307770F,CC0C
0406,4000004C,E0E0E0E0,848E0E0,6606060C
  690 DATA 77330301,F0F0701,307770F,1100
0101,4000004C,E0E0E0E0,848E0E0,88080808
  700 DATA 51110147,E1E1E1E1,343F1E1,330
20303,CC880800,E0E0C00,80CCC0E,0
```

Get it right ✓

10 =   0 0
20 =   0 0
30 =   0 0
40 =   0 0
50 =   0 0
60 = 9719 9
70 = 4108 8
80 = 67F1 2
90 = F1B0 9
100 = 126A B
110 = F41E E
120 = 3926 0
130 = FD2E 4
140 = 98A5 3
150 = BB7D C
160 = 53A9 4
170 = 5249 9
180 = 61AE 2
190 = FC20 4
200 = BE46 F
210 = 60E0 B
220 = 2FED 2
230 = A95F 4
240 = 1708 0
250 = F4C2 1
260 = 153D D
270 = B525 3
280 = 56A0 8
290 = D005 1
300 = C8FE 4
310 = DC63 8
320 = 18DE E
330 = B0B E
340 = 9A87 4
350 = AE79 5
360 = C6E4 8
370 = A53C F
380 = E110 4
390 = 6F1C 0
400 = EDFD 2
410 = 6A23 0
420 = 4BA5 0
430 = CF63 C
440 = 4480 F
450 = F2DA A
460 = 492C B
470 = 9A87 8
480 = 5C49 9
490 = 9033 6
500 = 36B0 2
510 = 8B58 2
520 = 2C83 6
530 = ED0F 3
540 = BA6C B
550 = 4970 F
560 = 9FF8 5
570 = F31D 0
580 = DEAA 5
590 = FC20 E
600 = 1106 6
610 = 8B58 1
620 = 2C83 0
630 = B113 B
640 = EE7F 2
650 = 1F74 7
660 = D044 A
670 = B083 D
680 = 804E 3
690 = D802 3
700 = 3359 D

```
OCscreen
  510  IF scr=2 THEN RESTORE 3990:PSTA=5
:PSTO=9:PLEV=13:ST=14:STO=18:LL=12:S=15:
mx%=5:my%=6:FF=16:GG=26:hx%=17:hy%=25:PR
OCscreen
  520  IF scr=3 THEN RESTORE 4090:PSTA=3
:PSTO=10:PLEV=13:ST=2:STO=17:LL=27:S=3:m
x%=16:my%=21:FF=16:GG=1:hx%=17:hy%=0:PRO
Cscreen
  530  IF scr=4 THEN RESTORE 4190:PSTA=7
:PSTO=16:PLEV=18:ST=15:STO=18:LL=22:S=16
:mx%=9:my%=26:FF=4:GG=21:hx%=1:hy%=20:PR
OCscreen
  540 IF scr=5 THENPROCuncls:PROCwin:GOT
O 380
  550 PROCuncls
  560 add=&5800+&10*mx%+&140*my%:?&70=ad
d MOD256:?&71=add DIV 256
  570 :
  580 :
  590 COLOUR2:FOR D=0 TO lives-1:PRINTTA
B(D,29);righ$:NEXT:COLOUR1:FOR A=27 TO 0
 STEP -1:PRINTTAB(0,A);ladder$:NEXT
  600 CALL&1D00
  610 ENDPROC
  620 :
  630 DEAD=FALSE:REPEAT
  640 START=TRUE:bonus=bonus-5
  650 IFDEAD=TRUE THEN GOTO 790
  660 IFlives<1 THEN DEAD=TRUE :GOTO 790
  670 IF mx%=0 PROCups
  680 IF my%>27 THEN PROCdie
  690 IF DIE=TRUE THEN DIE=FALSE:PROCdie
  700 IF INKEY(-74)THENPROCjump
  710 IF INKEY(-98)ANDmx%>0THENPROCl:PRO
Cblank:mx%=mx%-1:GOTO 820
  720 IF INKEY(-67)AND mx%<19 THENPROCr:
PROCblank:mx%=mx%+1:GOTO 820
  730 IF FALL=TRUE THEN FALL=FALSE:PRINT
TAB(mx%+1,my%);" ":PROCdie
  740 IF INKEY(-56) THEN REPEAT UNTIL IN
KEY(-52)
  750 IF DIE=TRUE THEN DIE=FALSE:PROCdie
  760 IF screen>5 AND screen<11 THEN PRO
Clights
  770 IF screen>17 THEN PROClights
  780 IF DEAD = FALSE THEN PROCmove:PROC
test
  790 UNTIL DEAD:IF DEAD THEN GOTO 300
  800 :
  810 :
  820 an=an+1:IF an=3 THEN an=1
  830 SOUND0,3,12,2
  840 IF DEAD=TRUE THEN GOTO 790
  850 IF mx%>19 THEN mx%=19
  860 COLOUR1
  870 IF HOUSE=TRUE AND mx%=FF AND my%=G
G THEN HOUSE=FALSE:screen=screen+1:PROCg
etready:GOTO 360
  880 PROCtest:GOTO790
  890 :
  900 :
  910 DEF PROCblank:PROCmove:IF POINT(mx
%*64,1023-((my%+2)*32)+12)=3 THEN DIE=TR
UE
  920 ENDPROC
  930 DEFPROCgettest
  940 ENDPROC
  950 :
  960 DEFPROCtest:PROCplat:IF POINT(mx%*
64,1023-(my%+2)*32)=0 THENPROCfall
  970 IF POINT(mx%*64,1023-((my%+2)*32)+
8)=2 THENPROCget
  980 IF POINT(mx%*64,1023-((my%+2)*32)+
12)=3 THENPROCdie:ENDPROC
  990 ENDPROC
 1000 :
 1010 DEFPROCfall:Z=FALSE:DD=0:COLOUR1:R
EPEAT:DD=DD+1:SOUND&0011,3,200-my%*4,2:m
y%=my%+1:CALLdown
 1020 IF POINT((mx%*64)+8,1023-(my%+2)*3
2)=2 THEN PRINTTAB(mx%,my%+2);" ":PROCge
t
 1030 UNTIL POINT(mx%*64,1023-(my%+2)*32
)<>0 OR my%>26
 1040 IF Z=TRUE THEN SOUND&0010,-15,7,10
:Z=FALSE
 1050 IF DD>6 THEN PROCdie
 1060 IF mx%>=27 THEN PROCdie
 1070 ENDPROC
 1080 :
 1090 DEFPROCjump:IF my%<1 THEN ENDPROC
 1100 COLOUR2:IF INKEY(-98) AND mx%>3 TH
ENPROCleft:ENDPROC
 1110  IF INKEY(-67) AND mx%<16 THEN PRO
Cright:ENDPROC
 1120 PROCup:ENDPROC
 1130 :
 1140 DEFPROCleft:PROCblank:mx%=mx%-1:my
%=my%-1:PROCl:CALL up:PROCwait:PROCblank
:mx%=mx%-1:PROCl:PROCwait:PROCblank:mx%=
mx%-1:PROCl:PROCwait:PROCblank
 1150 mx%=mx%-1:my%=my%+1:PROCl:CALL dow
n:PROCwait:ENDPROC
 1160 :
 1170 DEFPROCwait:IF mx%=0 THEN PROCups
 1180 PROCplat:PROCtesty:PROCt:IF smash=
TRUE THEN my%=my%-1:mx%=mx%-1:smash=FALS
E
 1190 IF smash2=TRUE THEN my%=my%-1:mx%=
mx%-1:smash2=FALSE
 1200 PROCt:ENDPROC
 1210 :
 1220 DEFPROCright:PROCblank:mx%=mx%+1:m
y%=my%-1:PROCr:CALL up:PROCwait:PROCblan
k:mx%=mx%+1:PROCr:PROCwait:PROCblank:mx%
=mx%+1:PROCr:PROCwait:PROCblank
 1230 mx%=mx%+1:my%=my%+1:PROCr:CALL dow
n:PROCwait:ENDPROC
 1240 :
 1250 DEFPROCl:CALL left:FORd=0 TO 50:NE
XT:CALLleft:ENDPROC
 1260 DEFPROCr:CALL right:FORd=0 TO 50:N
EXT:CALLright:ENDPROC
 1270 DEFPROCup:CALLup:CALLup:CALL down:
CALL down:ENDPROC
 1280 :
 1290 DEFPROCt:FOR A=1 TO 2:NEXT:ENDPROC
 1300 :
 1310 DEFPROCwait1:PROCplat:ENDPROC
 1320 :
 1330 DEFPROCdie:FOR A=my% TO 28:CALL do
wn:NEXT
 1340 A=3:SOUND1,2,48,A:SOUND1,2,40,A:SO
UND1,2,32,A:SOUND1,2,24,A:SOUND1,2,20,A:
SOUND1,2,12,A:SOUND1,2,4,A*3:SOUND1,2,52
,A
 1350 *FX 15,1
 1360 DIE=FALSE:PROCgover:PROCdraw:ENDPR
OC
 1370 :
 1380 DEFPROCmove:IFR=TRUE AND S>STO THE
N R=FALSE
 1390 REMIF DEAD=TRUE THEN ENDPROC
 1400 IFR=FALSE AND S<ST THEN R=TRUE
 1410 PRINTTAB(S,LL);" ":IF R=TRUE THEN
S=S+1
 1420 IF R=FALSE THEN S=S-1
 1430 COLOUR3:PRINTTAB(S,LL);CHR$(230):C
OLOUR2:ENDPROC
 1440 :
 1450 DEF PROCgetready:GCOL 0,0:FOR A=0
TO 640 STEP 8:SOUND&0011,3,200-A/5,10:MO
VE A,0:DRAW A,1023:MOVE 1279-A,0:DRAW 12
79-A,1023:NEXT A
 1460 COLOUR3:IF bonus<5 THEN ENDPROC
 1470 PRINTTAB(5,5);"Time Bonus";TAB(8,7
);bonus
 1480 sc%=sc%+bonus:bonus=1100:FORA=0 TO
 2000:NEXT:COLOUR128:CLS:ENDPROC
 1490 :
 1500 DEFPROCgover:bonus=1100:lives=live
s-1:IF lives=0 THEN GOTO 1510 ELSE PROCs
tartagain:ENDPROC
 1510 FOR T=0 TO 1000:NEXT
 1520 DATA R,E,V,O," ",E,M,A,G
 1530 RESTORE 1520:FOR A=1 TO 9:READ A$:
FOR T=1 TO 13-A:SOUND&0011,-15,T+50,2:PR
INTTAB(T,15);A$:FOR S=0 TO 40:NEXT:PRINT
TAB(T,15);" ":NEXT:PRINTTAB(T,15);A$:NEX
T
 1540 FOR T=0 TO 3000:NEXT:DEAD=TRUE:END
PROC
 1550 :
 1560 DEFPROCups:IF my%=1 ENDPROC ELSE C
OLOUR1:FORA=my% TO 2 STEP-1:SOUND1,1,50-
A,1:CALL up:NEXT:my%=1:ENDPROC
 1570 :
 1580 DEFPROCd(A,B,C,D)
 1590 COLOUR7
 1600 IF B<>28 THEN PROCdl(A,B,C,D) ELSE
 PRINTTAB(A,B);STRING$(19,CHR$D)
 1610 ENDPROC
 1620 :
 1630 DEFPROCplat
 1640 IF PLEV=0 ENDPROC
 1650 pl=pl+1:IF pl=2 THEN pl=0 ELSE END
PROC
 1660  PRINTTAB(P,PLEV);"    "
 1670 COLOUR 7
 1680 IF DIR=TRUE THEN P=P+1
 1690 IF DIR=FALSE THEN P=P-1
 1700 PRINTTAB(P,PLEV);plat$
 1710 IF P=PSTO THEN DIR=FALSE
 1720 IF P=PSTA THEN DIR=TRUE
 1730 COLOUR2
 1740 ENDPROC
 1750 :
 1760 DEF PROCstartagain
 1770 FORS=0 TO 4000:NEXT
 1780 ENDPROC
 1790 :
 1800 DEF PROCinsts
 1810  IF sc%>=score%(8) THEN PROCentern
ame
 1820 DEAD=FALSE
 1830 CLS
 1840 PRINTTAB(0,1);STRING$(20,CHR$(242)
+" ")
 1850 PRINTTAB(10,3);"Santa's Slip - Up!
"
 1860 PRINTTAB(0,5);STRING$(20,CHR$(242)
+" ")
 1870 PRINTTAB(10,20);"PRESS SPACE TO ST
ART"
 1880 PRINTTAB(1,15);"Z = Left   X = Rig
ht   Return = Jump"
 1890 PRINTTAB(1,8);"S = Sound  Q = Quie
t"
 1900 PRINTTAB(1,11);"P = Pause  R = Res
ume"
 1910 VDU23,1,0;0;0;0;
 1920 A$=GET$:IF A$=" "THENENDPROC
 1930 IF A$="S" THEN *FX210,0
 1940 IF A$="Q" THEN *FX210,1
 1950 GOTO1920
 1960 ENDPROC
 1970 :
 1980 DEFPROCtesty:smash=FALSE:smash2=FA
LSE
 1990 ENDPROC
 2000 IF POINT((mx%-1)*64,1023-(my%+1)*3
2)=3 THEN FALL=TRUE:smash2=TRUE
 2010 IF POINT((mx%+1)*64,1023-(my%+1)*3
2)=3 THEN FALL=TRUE:smash=TRUE
 2020 IF FALL=TRUE PROCdie:FALL=FALSE
 2030 ENDPROC
 2040 :
 2050 DEFPROCget
 2060 SOUND&0011,-15,25,1
 2070 sc%=sc%+10
 2080 PROCupdate
 2090 EE=EE+1:IF EE=11 THEN EE=1:HOUSE=T
RUE
 2100 PRINTTAB(mx%,my%);" "
 2110 PRINTTAB(mx%,my%+1);" "
 2120 CALL&1D00
 2130 COLOUR1
 2140 IF HOUSE=TRUE THEN PRINTTAB(0,30);
" Your sack is full!"
 2150 IF HOUSE=TRUE THEN PRINTTAB(0,29);
SPC3
 2160 ENDPROC
 2170 :
 2180 DEF PROCwin
 2190 COLOUR3:COLOUR129
 2200 PRINTTAB(1,4)SPC17
 2210 PRINTTAB(1,5);" CONGRATULATIONS "
 2220 PRINTTAB(1,8)SPC17
 2230 PRINTTAB(1,6)SPC17
 2240 IF lives<3 THEN PRINTTAB(1,7)"  EX
TRA MAN AND  " ELSE PRINTTAB(1,7)SPC17
 2250 PRINTTAB(4,11)SPC11
 2260 PRINTTAB(4,12);" B O N U S "
 2270 PRINTTAB(4,13)SPC11
 2280 PRINTTAB(7,16)SPC5
 2290 PRINTTAB(7,17);" 500 "
 2300 PRINTTAB(7,18)SPC5
 2310 COLOUR 128
 2320 PRINTTAB(1,2);STRING$(9,snowman$+C
HR$11+CHR$32)
 2330 PRINTTAB(2,10);snowman$
 2340 PRINTTAB(16,10);snowman$
 2350 PRINTTAB(5,17);snowman$
 2360 PRINTTAB(13,17);snowman$
 2370 FOR A=0 TO 100 STEP 4
 2380 SOUND1,2,A,2
 2390 SOUND1,2,1,1
 2400 NEXT
 2410 screen=screen+1
 2420 sc%=sc%+500
 2430 IF lives<3 THEN lives=lives+1
 2440 CLS
 2450 ENDPROC
 2460 :
 2470 DEF PROCtune
 2480 RESTORE 2570
 2490 A=7
 2500 FOR T=1 TO 17
 2510 READ C,D
 2520 IF C=999 THEN SOUND1,0,0,A/2:GOTO
2560
 2530 SOUND1,3,C,D
 2540 SOUND1,0,0,0.5
 2550 CALLright
 2560 NEXT T
 2570 DATA52,A,72,A,72,A,72,A,80,A,88,A/
2,80,A/2,88,A/2,92,A/2,100,A,88,A,92,A,8
8,A/2,72,A/2,80,A,80,A,72,A*2
 2580 GCOL 0,0
 2590
 2600 FOR Z=0 TO 3000:NEXT
 2610 ENDPROC
 2620 :
 2630 DEF PROCtable
 2640 IF sc%>score%(8) THEN PROCenternam
e
 2650 CLS
 2660 PRINT'STRING$(20,CHR$(242)+" ")
 2670 PRINT "  Santa's Slip - Up!";SPC6;
"Hi - Scores":PRINT'STRING$(20,CHR$(242)
+" ")
 2680 FOR I%=1 TO 8
 2690 PRINT;TAB(5);I%;".  ";TAB(10);name
$(I%);TAB(30);score%(I%)
 2700 PRINT
 2710 NEXT
 2720 *FX15,1
 2730 PRINTTAB(9)"Press <SPACE> to play!
"
 2740 REPEATUNTILGET=32
 2750 DEAD=FALSE:HOUSE=FALSE:lives=3
 2760 screen=0:sc%=0
 2770 ENDPROC
 2780 :
 2790 DEF PROCinit2
 2800 RESTORE3080
 2810 DIM score%(8),name$(8)
 2820 FOR I%=1 TO 8
 2830 score%(I%)=5000 - I%*500
 2840 READ A$:name$(I%)=A$
 2850 NEXT I%
 2860 ENDPROC
 2870 :
 2880 DEF PROCentername
 2890 COLOUR128:CLS
 2900 COLOUR 3
 2910 PRINTTAB(0,3);STRING$(20,CHR$(242)
+" ")
 2920 PRINTTAB(5,5);"**Congratulations**
"
 2930 PRINTTAB(0,7);STRING$(20,CHR$(242)
+" ")
 2940 PRINT
 2950 PRINT '"You are in the high score
table!"''"What is your name?"''''"?";
 2960 *FX 15,1
 2970 COLOUR1:string$="":VDU 23,1,1;0;0;
0;
 2980 REPEAT:K%=INKEY(0)
 2990 IF K%>31 AND K%<127 AND POS<18 str
ing$=string$+CHR$K%:VDUK%
 3000 IF K%=127 AND LEN string$ string$=
LEFT$(string$,LEN(string$)-1):IF POS>1 V
DU K%
 3010 UNTIL K%=13
 3020 score%(8)=sc%:name$(8)=string$
 3030 FOR I%=8 TO 2 STEP -1
 3040 IF score%(I%)>score%(I%-1) sc%=sco
re%(I%):score%(I%)=score%(I%-1):score%(I
%-1)=sc%:string$=name$(I%):name$(I%)=nam
e$(I%-1):name$(I%-1)=string$
 3050 NEXT I%
 3060 ENDPROC
 3070 :
 3080 DATA "Written By:","Oliver Bishop"
,"Original Screens by","Stuart Williams"
,"Julian Bishop","Philip Jefferies","Ras
hid Qureshi","Jonathan Price"
 3090 :
 3100 DEFPROClights
 3110 SOUND0,3,12,1
 3120 A=RND(2)
 3130 IF A=1 THEN VDU 19,3,15,0,0,0
 3140 IF A=2 THEN VDU 19,3,7,0,0,0
 3150 ENDPROC
 3160 :
 3170 DEFPROCupdate:COLOUR1
 3180 PRINTTAB(10,29);sc%
 3190 ENDPROC
 3200 :
 3210 DEFPROCerr
 3220 COLOUR128:COLOUR7
 3230 CLS
 3240 PRINT'''''':REPORT
 3250 PRINT''"At line"
 3260 PRINT';ERL
 3270 PRINT''':END
 3280 :
 3290 DEF PROCscreen
 3300 GCOL0,1:FORA=0 TO 60:PLOT69,RND(12
79),RND(923)+100:NEXT
 3310 P=PSTA+1
 3320 REPEAT
 3330 READ A,B,C
 3340 IF A=-1 THEN GOTO 3360
 3350 PROCd(A,B,C,224)
 3360 UNTIL A=-1
 3370 REPEAT
 3380 READ A,B
 3390 IF A=-1 THEN GOTO 3410
 3400 PRINTTAB(A,B);CHR$(230)
 3410 UNTIL A=-1
 3420 REPEAT
 3430 READ A,B
 3440 IF A=-1 THEN GOTO 3460
 3450 PRINTTAB(A,B);snowman$
 3460 UNTIL A=-1
 3470 COLOUR 129:COLOUR 2
 3480 REPEAT
 3490 READ A,B
 3500 IF A=-1 THEN GOTO 3520
 3510 PRINTTAB(A,B);CHR$(229)
 3520 UNTIL A=-1
 3530 COLOUR 128:COLOUR1
 3540 FORA=0 TO 28:PRINTTAB(0,A);CHR$246
:NEXT:PRINTTAB(hx%,hy%);roof$:COLOUR3:PR
INTTAB(hx%,hy%+1);house$
 3550 :
 3560 ENDPROC
 3570 DEFPROCdl(A,B,C,D)
 3580 GCOL0,3:A=A*64
 3590 B=B*32:B=1023-B
 3600 VDU5:MOVE A,B:PRINTSTRING$(C,CHR$D
)
 3610 MOVE A,B:GCOL0,1:PRINTSTRING$(C,CH
R$243):VDU4
 3620 ENDPROC
 3630 DEFPROCcls
 3640 FORA=1 TO3
 3650 VDU19,A,0,0,0,0
 3660 NEXT
 3670 ENDPROC
 3680 DEFPROCuncls
 3690 VDU19,1,1,0,0,0
 3700 VDU19,2,3,0,0,0
 3710 VDU19,3,7,0,0,0
 3720 ENDPROC
 3730 :
 3740 :
 3750 REM All these colons are necessary
 3760 REM to space out the data.
 3770 REM Screen 1
 3780 REM Note the next line number
 3790 DATA 1,3,10, 8,8,12, 1,13,7, 10,18
,10, 1,23,10, 1,28,19, 12,13,4, -1,-1,-1
 3800 DATA -1,-1
 3810 DATA 19,6, 19,16, -1,-1
 3820 DATA 5,2, 9,2, 2,12, 5,12, 12,17,
16,17, 2,22, 5,22, 9,22, 2,27, 6,27, 10,
27, 13,27, 13,12, -1,-1
 3830 :
 3840 :
 3850 :
 3860 :
 3870 :
 3880 REM Screen 2
 3890 DATA 1,3,6, 11,3,4, 1,8,4, 17,8,3,
 4,13,6, 1,28,19, 8,18,7, 1,18,4, 15,13,
5, 18,18,2, 4,23,7, 15,23,5, -1,-1,-1
 3900 DATA 19,12, 6,27, 8,27, -1,-1
 3910 DATA 7,26, 19,21, 10,21, -1,-1
 3920 DATA 3,2, 2,7, 2,17, 6,12, 17,12,
3,27, 12,27, 7,22, 17,22, 14,2, 18,7, -1
,-1
 3930 :
 3940 :
 3950 :
 3960 :
 3970 :
 3980 REM Screen 3
 3990 DATA 1,3,2, 1,8,6, 6,3,5, 14,3,6,
11,8,3, 17,8,3, 1,13,4, 13,13,7, 1,28,19
, 3,18,5, 12,18,8, 8,23,4, -1,-1,-1
 4000 DATA 9,27, -1,-1
 4010 DATA 1,6, 19,1, 19,6, 19,16, -1,-1
 4020 DATA 3,7, 15,2, 9,2, 12,7, 2,12, 1
4,17, 17,17, 5,17, 9,22, 2,27, 6,27, 12,
27, 15,27, -1,-1
 4030 :
 4040 :
 4050 :
 4060 :
 4070 :
 4080 REM Screen 4
 4090 DATA 1,3,7, 11,3,9, 1,28,19, 14,23
,6, 1,23,4, 8,23,3, 14,18,6, 14,13,6, 13
,8,7, 1,13,2, 5,18,3, 11,18,1, 4,8,6, -1
,-1,-1
 4100 DATA 5,7, -1,-1
 4110 DATA 19,6, 19,11, 19,26, -1,-1
 4120 DATA 3,2, 6,2, 13,2, 7,7, 15,7, 16
,12, 16,17, 3,22, 18,22, 9,22, 6,17, -1,
-1
 4130 :
 4140 :
 4150 :
 4160 :
 4170 :
 4180 REM Screen 5
 4190 DATA 1,28,19, 1,23,7, 1,18,6, 1,23
,6, 1,13,6, 1,8,4, 1,3,1, 14,23,6, 6,3,5
, 15,3,5, 10,8,6, 14,13,6, -1,-1,-1
 4200 DATA 2,12, 11,27, -1,-1
 4210 DATA 19,11, 19,1, 19,26, -1,-1
 4220 DATA 14,27, 3,27, 6,27, 6,22, 2,27
, 2,17, 5,17, 5,12, 3,7, 8,2, 16,2, 11,7
, 15,12, -1,-1
```

Get it right ✓

```
  10 =    0 0
  20 =    0 0
  30 =    0 0
  40 =    0 0
  50 = 9719 9
  60 = EC4D F
  70 = 75D0 0
  80 = BCF5 8
  90 = 26F2 2
 100 =  9A8 0
 110 = 8D55 2
 120 = 9719 7
 130 = E20D 4
 140 = 2913 5
 150 = A8B2 5
 160 = 8A85 7
 170 =  52B A
 180 = E650 3
 190 = 2E79 6
 200 = 402E 3
 210 = BE7C B
 220 = EEC4 7
 230 = 9BEB 2
 240 = 7170 E
 250 = 3F57 B
 260 = ED0F 3
 270 = 9719 A
 280 = 30D0 4
 290 = 84F1 3
 300 = 71AF E
 310 = 6D88 3
 320 = 848D 0
 330 = 5D40 9
 340 = F837 9
 350 = F85B 1
 360 = B006 6
 370 = 778E 3
 380 = 3D6C E
 390 = E5DB 4
 400 = C114 5
 410 = C75E 7
 420 = 9719 8
 430 = CE7E C
 440 = AAAD 5
 450 = 5F29 2
 460 = B0AD 9
 470 = D323 1
 480 =    0 1
 490 = B685 9
 500 = C77D B
 510 = 25AA A
 520 = AAFB F
 530 = 18A5 B
 540 =  628 5
 550 = 1D2D 6
 560 = 20D8 5
 570 = 9719 E
 580 = 9719 7
 590 = E58F 0
 600 = 4492 B
 610 = ED0F 9
 620 = 9719 0
 630 = E268 F
 640 = B1B2 5
 650 = 9EEC F
 660 = B442 1
 670 = BEDD C
 680 = A312 5
 690 = 5DE1 3
 700 = 26C9 B
 710 = 4802 7
 720 = EB0C B
 730 = 248A 2

 740 =  12E C
 750 = 5DE1 4
 760 = E315 0
 770 = 5AFF F
 780 = 3980 6
 790 = 457B C
 800 = 9719 0
 810 = 9719 1
 820 = 6025 9
 830 = 93CA 9
 840 = B48A 7
 850 = 83F8 F
 860 = E949 3
 870 = 8433 2
 880 = 59D3 0
 890 = 9719 6
 900 = 9719 3
 910 = 8DB0 C
 920 = ED0F 2
 930 = 964C 2
 940 = ED0F 4
 950 = 9719 5
 960 = C59E 6
 970 = 19A0 E
 980 = 8DD2 2
 990 = ED0F 2
1000 = 9719 3
1010 = 1929 2
1020 = 3AC2 B
1030 = 2702 0
1040 = 67DD 5
1050 = ECD1 3
1060 = DDCC E
1070 = ED0F B
1080 = 9719 7
1090 =  29E E
1100 = F527 5
1110 = 340C 5
1120 = 5ABC 7
1130 = 9719 7
1140 = 69FB 6
1150 = E5EA 7
1160 = 9719 7
1170 = 2372 5
1180 = C523 D
1190 = B36E C
1200 = 71BC 4
1210 = 9719 5
1220 = B7BA B
1230 = A728 2
1240 = 9719 F
1250 = 5F92 F
1260 = D387 2
1270 = B9A3 3
1280 = 9719 E
1290 = C44A F
1300 = 9719 8
1310 = 7282 1
1320 = 9719 E
1330 = F6A6 2
1340 = 6E8F 7
1350 = F24E D
1360 = 7953 5
1370 = 9719 9
1380 = 19FA F
1390 =    0 F
1400 = 62E6 B
1410 = 58F0 4
1420 = CF6A A
1430 = 3381 D
1440 = 9719 0
1450 = EC76 1
1460 = EDE6 A

1470 = A0C7 F
1480 = F193 E
1490 = 9719 C
1500 = D453 E
1510 = E937 0
1520 = E9FC B
1530 = A9EF 3
1540 =   3E F
1550 = 9719 D
1560 = 250C B
1570 = 9719 2
1580 = 32E7 4
1590 = 898F 7
1600 = 9D90 C
1610 = ED0F D
1620 = 9719 3
1630 = 3B55 7
1640 = 9A43 7
1650 = 2C38 9
1660 =  F4C 8
1670 = 53F1 C
1680 = 942F 6
1690 = 82EF B
1700 = 20B5 3
1710 = F91D 9
1720 = 1165 D
1730 = D92A B
1740 = ED0F A
1750 = 9719 B
1760 = 5126 9
1770 = FDB1 5
1780 = ED0F C
1790 = 9719 4
1800 = 5592 E
1810 = F9D7 9
1820 = 718B D
1830 = 7A16 7
1840 = 25BE C
1850 = D745 F
1860 = D519 8
1870 = 83F0 D
1880 = 64D4 1
1890 = 7BF7 9
1900 = AB47 9
1910 = B39D 6
1920 = C196 B
1930 = 547E 8
1940 = CE99 9
1950 = CDC2 C
1960 = ED0F 0
1970 = 9719 6
1980 = 82B7 2
1990 = ED0F D
2000 = C707 C
2010 = 2731 0
2020 = AB82 C
2030 = ED0F 3
2040 = 9719 2
2050 = B08A F
2060 =  144 6
2070 = BAC7 6
2080 = 9386 2
2090 = 57D7 3
2100 = 44E6 2
2110 = EEB6 3
2120 = 4492 6
2130 = E949 5
2140 = 1736 3
2150 = C6F4 5
2160 = ED0F 9
2170 = 9719 8
2180 = F124 C
2190 = 78D1 C

2200 = D8BA A
2210 = 1375 4
2220 = 5391 7
2230 = 5F57 9
2240 = 9AA7 7
2250 = 4507 1
2260 = FDA7 E
2270 = F6E2 4
2280 = 9FFB 2
2290 = 5CB4 6
2300 = 3DA1 C
2310 = C2DE 8
2320 = 55C6 C
2330 = 299E F
2340 =  79C 7
2350 = 7FF5 3
2360 = 3A99 C
2370 =  6C8 F
2380 = A999 C
2390 = 41F2 E
2400 = 2C83 3
2410 = B6BC 0
2420 = B36B 3
2430 = 4F62 F
2440 = 7A16 D
2450 = ED0F D
2460 = 9719 6
2470 = 2EEC 7
2480 = 3C70 D
2490 = CCE7 6
2500 = 2EC2 7
2510 = E9FC B
2520 = 6AB0 9
2530 = 9396 3
2540 = 4F3D 5
2550 = 789E C
2560 = FEF7 9
2570 = 9217 5
2580 = 71BA C
2590 = D1AD 1
2600 =  DE5 9
2610 = ED0F B
2620 = 9719 5
2630 = 2822 5
2640 = 6216 C
2650 = 7A16 3
2660 = E32A 0
2670 = 38F6 5
2680 = 1745 8
2690 = 74B9 C
2700 = FF3E C
2710 = 2C83 B
2720 = 7CA7 F
2730 = 67DA 1
2740 = 5B81 C
2750 = 8646 3
2760 = 75FC 8
2770 = ED0F 4
2780 = 9719 9
2790 = 89D5 F
2800 = 331F C
2810 = F178 1
2820 =  3B4 7
2830 = 114F B
2840 = C32E 2
2850 = F839 4
2860 = ED0F 2
2870 = 9719 3
2880 = 90A0 1
2890 = C96C 4
2900 = 1375 1
2910 = 42BA D
2920 = BB91 F

2930 = 255A 6
2940 = FF3E 3
2950 = C4BD 4
2960 = F24E D
2970 = 6C26 B
2980 = 2B0D D
2990 = 35E8 8
3000 = 95E3 C
3010 = 3166 D
3020 =  671 7
3030 = 921A 1
3040 = 7950 1
3050 = F839 F
3060 = ED0F A
3070 = 9719 4
3080 = F0F1 6
3090 = 9719 F
3100 = 7AFD 6
3110 = A3A9 F
3120 = 91F2 A
3130 = C5A2 6
3140 = 578D 3
3150 = ED0F F
3160 = 9719 D
3170 = C8B8 0
3180 = 5E76 7
3190 = ED0F F
3200 = 9719 B
3210 = 24C8 5
3220 = 6437 E
3230 = 7A16 1
3240 = 5FA3 F
3250 = B7C3 8
3260 = 51B7 2
3270 = C939 5
3280 = 9719 3
3290 =  3F6 6
3300 = CD6A D
3310 = 9AAE 4
3320 = BFBA D
3330 = 49B6 A
3340 =  77B 1
3350 = 93C3 E
3360 = 1E5F F
3370 = BFBA 8
3380 = E75A E
3390 = 27EF 1
3400 = 9F62 7
3410 = 1E5F 7
3420 = BFBA 8
3430 = F3AB B
3440 = 4B9F B
3450 = BF73 4
3460 = 1E5F C
3470 = CD1E 7
3480 = BFBA E
3490 = E75A B
3500 = C438 F
3510 = 12CA D
3520 = 1E5F 5
3530 = 9592 F
3540 = C2E6 B
3550 = 9719 C
3560 = ED0F 8
3570 = 9ADC 9

3580 = 1941 C
3590 = 75F9 D
3600 = D5EB A
3610 = 1B89 8
3620 = ED0F 5
3630 = A635 0
3640 = 8F4A F
3650 = 7F90 E
3660 = 2C83 C
3670 = ED0F E
3680 = B649 D
3690 = A348 F
3700 = 218D E
3710 = FD09 D
3720 = ED0F 7
3730 = 9719 2
3740 = 9719 D
3750 =    0 D
3760 =    0 D
3770 =    0 D
3780 =    0 D
3790 = CD33 A
3800 = F0F1 8
3810 = 861C 5
3820 = DD1E 8
3830 = 9719 B
3840 = 9719 6
3850 = 9719 D
3860 = 9719 E
3870 = 9719 8
3880 =    0 8
3890 = 5A2A 1
3900 = 713F 2
3910 = 2654 2
3920 = DABF 6
3930 = 9719 4
3940 = 9719 A
3950 = 9719 8
3960 = 9719 A
3970 = 9719 2
3980 =    0 2
3990 = 6DFC 8
4000 = AEA8 F
4010 = 423E D
4020 = B1E8 9
4030 = 9719 1
4040 = 9719 F
4050 = 9719 A
4060 = 9719 1
4070 = 9719 9
4080 =    0 9
4090 = FC75 0
4100 = DF1D D
4110 = 3355 0
4120 = 3527 F
4130 = 9719 4
4140 = 9719 D
4150 = 9719 5
4160 = 9719 E
4170 = 9719 8
4180 =    0 8
4190 = 24F8 2
4200 = 82D7 D
4210 = F2C0 F
4220 = F908 5
```

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- RISC-OS version multitasks
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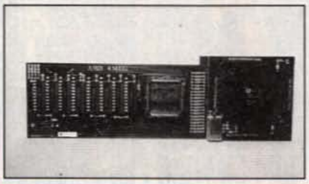

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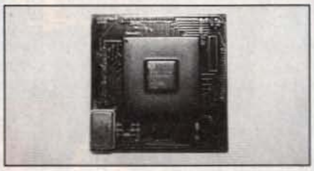

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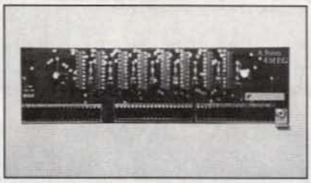

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DTP knowhow

Pam Turnbull looks at three books designed to make desktop publishing more productive and better presented

WITH the advent of desktop publishing everyone can be their own publisher whether they have the skill or not. There is a common fallacy that the software and hardware will take care of all the difficult bits, all you have to do is write to create a masterpiece.

Unfortunately, very few people's first attempts at DTP are successful. There are basic principles to follow which are very rarely, if ever, mentioned in software manuals.

To stop new users having to re-invent the wheel these three new books cover what you really need to know, taking three different approaches to do so.

Product: Good Manners in Desktop Publishing
Price: £5.95
Supplier: Allenhome Press, 10 Woodcroft Road, Wylam NE41 8DJ.

Product: Desktop Publishing on the Archimedes – DTP for all
Price: £12.95
Supplier: Sigma Press, 98a Water Lane, Wilmslow SK9 5BB
Tel: 0625 531035

Product: First Impression – a tutorial guide
Price: £29.95
Supplier: Word Processing, 65 Milldale Crescent, Fordhouses, Wolverhampton WV10 6LR.

Good Manners in Desktop Publishing

This slim offering, written by Henry Davy is sub-titled, "The principles of typography applied to near-printing techniques".

Basically, whether you're using a typewriter and cut and paste or a computer with the very latest in DTP software, there are rules to follow if you want people to read what you write.

Using his own experience as a designer and typographer, Henry Davy presents some interesting background information with quotes from other authorities, such as: "Dullness and monotony in typesetting are less vicious to a reader than typographical eccentricity and pleasantry."

The basic truths he presents are well worth learning to avoid the pitfalls that most DTPers fall into from time to time. You can sum this all up in the idea that good typesetting should be a "crystal goblet" where the reader sees the message, not the individual letters.

To this end you are let into some basic tricks of the trade. For instance, typefaces with serifs act as a visual aid to reading and it is an established fact that Roman is the most legible face, especially when it isn't condensed and there is no great contrast between the thick and the thin structure of the letters.

Throughout the book the legibility of what you are presenting is emphasised. An extremely good suggestion is that everyone should make themselves a specimen book.

There are some examples in the appendices. These show the different faces, widths and so on which you have at your disposal. By printing them you can find which will be the best for your purposes and the easiest to read in its final form.

Rather than just talking about leading (pronounced ledding) Davy explains why you use it, about the balancing act of the numbers of words a reader's eye can take in and the economic consequences.

Quite a lot of jargon is used, although there is a glossary. The introductory section in Bruce Goatly's book gives a graphical illustration of the leading terminology which is easier to understand.

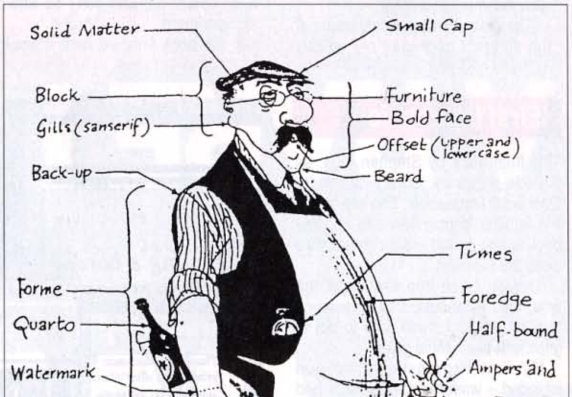
The bottom line is that whatever you are writing and whichever method you are using to produce your work, the principles remain the same.

The type of book you're producing, whether it is one to be studied, read fleetingly or for reference, determines the leading and typeface. It also depends on the reading skill of your audience. Whenever you can't decide, use your specimen book to see which one you'd prefer to use for a particular application.

Neither should you forget the principle of attraction versus attention. If the reader's interest is assured the type size can be reduced, taking care not to sacrifice the readability.

Good Manners is an excellent book which explains the basics so well known by traditional typesetters that they'd probably never consider that everyone was not aware of them.

Layman's Guide to the Printer's Anatomy ▼



(From the house magazine of Hazell, Watson & Viney)

Desktop Publishing on the Archimedes – DTP for all

DTP

While Davy takes a general look at DTP, Bruce Goatly concentrates on the Archimedes and the hardware and software at the disposal of budding writers.

As you'd expect, the book itself was totally written and set using DTP. In fact there is an appendix outlining just how this was done.

Although he has used Computer Concept's Impression he goes out of his way not to emphasise one particular package but to give a good all round view of available products – Ovation, Acorn DTP and Impression.

He also explains how to use educational packages like PenDown and Desktop Folio, as well as 1st Word Plus, PipeDream 3 and EasiWriter. He also reveals the secrets of budget DTP using Edit and Draw, which come on the Archimedes' Application discs.

Trying to cover so much in one book could be a recipe for disaster, but he has managed to pull it off. The general introduction is pitched at the newcomer, with an explanation of jargon and terms at an early stage to avoid possible later misunderstandings.

The strengths and weaknesses of the different packages are quickly outlined as are the basic computer knowledge and equipment you'll need.

Due to the Wimp and Risc OS systems of the Archimedes a lot of the basics are applicable to all the software, so this book is aimed at DTP users in general.

The use of screen dumps and illustrated examples is good. The discussion of concepts and good practice is not just of relevance to Archimedes owners.

The detail is impressive, and as you'd expect with a book on design, the layout encourages you to dip into the chapters rather than read it from cover to cover.

The writing style is easy to follow and informative, with the start of each chapter explaining what will be covered within it.

Hints and tips are given throughout on good design practice. These come together in the chapter on Rudiments of Design. This not only covers planning, page and typographical design but special graphic effects such as layering text over graphics.

It ends with two golden rules: See what others do, and don't be afraid to experiment.

If the book finished here it would be a good reference, but the practical examples which follow make it invaluable. Work through this chapter and you'll have your own headed notepaper, business forms, newspaper and newsletter.

Using the full blown DTP packages of Acorn DTP, Ovation and Impression, the last three examples are specific to each one of the packages but the basic ideas are transferable.

The final chapters are more for the professional user than the enthusiast but everyone needs to produce a hardcopy of their work at some stage. As Goatly has actually produced a book using the methods he describes, you could do a lot worse than learn from him.

Attention to detail, from paper weight to binding and trimming, makes all the difference in how your work is perceived and judged.

Desktop Publishing on the Archimedes is well written and literate. The technical details are not overdone – that's what you have manuals for – while the insights into the different packages tell you that he has actually used them.

An excellent and impartial reference whatever package you are using or planning to use.

First Impression

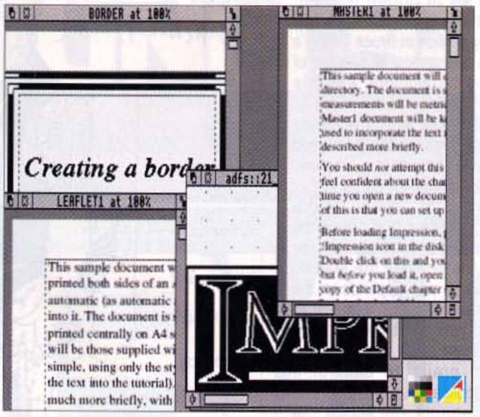
This final book by Stephen Ibbs, as the title suggests, covers Computer Concepts' Impression. The slip-box is the familiar Impression one and the book is ring-bound like a manual. Two discs are supplied.

Though I use Impression all the time, I am notoriously bad at resorting to manuals so I made time to get to grips with this tutorial guide.

My first impression – no pun intended – was that the package had been well thought out but to use it as a tutorial guide you'll have to be prepared to do the exercises as they come up. First Impression has a definite educational feel to it which would transfer happily into a classroom, office or home.

You can stop at any point in the book. For example you may only want to use Impression as a word processor and the first part will probably cover everything you need to know.

But it is the second section which I found especially interesting as it is full of sample documents and special techniques: Questionnaires, tables, tints, leaflets, border design and so on.



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Sample Impression, Edit and Draw files are all provided on the discs

Don't be tempted to skip exercises, because you could well miss something. At the end of each chapter are hints, a list of what you should now know, and a task to test you. Check these to make sure you're making the most of Impression's features.

The first section explains the procedures in detail and reminds of such things as keyboard shortcuts as you come across them.

The discs contain part or all of the designs you are trying to create, and a nice point is that possible problems are mentioned so you know when to panic. Text for incorporating into tasks is also provided to save time and typing.

This is not a replacement for the Impression manual, but should be used in conjunction with it. It provides an excellent way to learn about Impression at your own speed, testing your knowledge as you go.

The individual chapters are not too long as to be off-putting and you can do as much or as little as you want. Two weeks should see you with a relatively high degree of proficiency.

My only complaint is that I wish there was more. Perhaps a Volume 2 is possible Mr Ibbs?

Summing up

These three books complement each other and it's a coincidence that they are all available at the same time. If you can afford it, buy the first two and if you use Impression, all three. Read them in the order reviewed and you'll find your documents will really shine.

The last two are highly readable in their own right, while the principles in the first are invaluable regardless of what you plan to produce. DTP can be as complex or expensive as you want. These books will help you get the most from whatever you use.

THE SERIAL PORT

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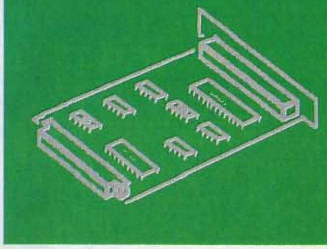

The Serial Port supply the largest and fastest range of SCSI cards for the Archimedes - as well as a range of devices including hard drives, tape streamers, magneto-optical and CD-ROM drives.

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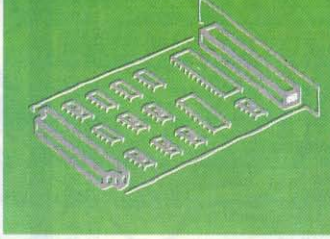
With all our products we include a support promise which means that you have access to, where possible, the people that actually designed the product. We also have a number of skilled software and hardware engineers that can provide you with answers to your enquiries.

The Graphics Enhancer



The Graphics Enhancer is a low-cost, high performance upgrade podule for improving the graphics performance of these machines. The card supports a 24-bit palette, giving 256 colours on screen simultaneously, selectable from 16,777,216 available colours. This allows modes of up to 768 x 288 on a standard monitor and 832 x 328, 512 x 512, 640 x 480 and many more on multisync monitors. (There are also non Desktop compatible 12 and 16 bits per pixel modes)

A Professional version of the Graphics Enhancer will soon be available, which will add full genlock capability to the other features supported by the standard version, allowing any of the 256 Desktop colours to have up to 24 bits of overlay keying, independantly of the rest. Please contact The Serial Port for pricing and availability.

Supplied with the Graphics Enhancer is the Mode Description Language Compiler which allows users to create new modes using the extra video facilities.

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The cost is low but the specification is high. The board is an 8-bit sampler supporting variable sampling up to 250 Khz with input via a 3.5mm jack allowing connection to audio devices. The software supports a range of features including over-sampling, sample rate conversion and software filtering. Waveform editing is possible with facilities to view the waveform (including real-time analysis), fade in / fade out and cut and paste. The samples are perfect for use in other packages such as Tracker and Armadeus.

The supplied software emulates the latest version of Acorn's MIDI software, allowing it to work with programs that use Acorn's podule.

Price: £69

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BELL COMPUTERS

33 Lomond Drive, Leighton Buzzard, Beds. Tel: 0525 383074

PAPER designed for writing music is very expensive, yet quite simple in design, so it would be nice to get a micro to display it for you. Well, here's a utility that does just that, and it provides a lot more options than a manuscript pad.

It was designed to print music staves on single-sheet A4 paper, and works with Epson-compatible printers. It will also work with laser printers that have Epson emulation. It allows not only the printing of single 5-rule staves, but also groups of staves joined by vertical bar-lines if required.

Up to eight musical parts are catered for, with anything from one to six bars per line. Combinations may be printed on the same page, physical space permitting.

The grouping of staves into parts results in better spacing than is normally obtainable from pre-printed manuscript, and saves a lot of ruling.

Type in the listing and ensure you've made no errors using the checksums then save it.

The program first offers a selection of stave groupings, corresponding to the number of parts. A number between one and eight may be pressed: Keyboard music, for example, would normally require a two part group – treble and bass.

Next, you may enter the number of these groups that you want printing on this page: this can be anything from one to a maximum which is determined by the number of parts you have selected.

This itself is limited by the physical size of the A4 sheet. As an instance, you can normally fit 10 single staves on one sheet, four three part staves, but only two eight part ones.

Staves for more than four parts have a slightly reduced line spacing to accommodate two groups.

Then you are asked how many bars you want each group divided into: This may be from one to six. The staves will then be divided into equal length bars, with a little extra space on the left to allow for clefs, key signatures and so on.

If you prefer to rule in your own bar lines – you may not want them equally spaced – entering 1 will achieve this, with vertical lines appearing only at the outside edges of each stave.

You may now put in your paper and turn on the printer, depressing the spacebar when ready.

After the sheet has been printed you are given the option of printing another, identical, sheet or of starting again with a different layout – to print a partially-filled last sheet, perhaps.

When finished with the program, simply press the Escape key.

As mentioned earlier, it is possible to print combinations on the same sheet.

It is unlikely that you would want to change the number of parts, but quite possible that you might require a different number of bars.

For example, if a piece of music requires 17 bars of double staves this may be achieved on the one sheet by selecting three two part staves of four bars each, followed by one stave with five bars.

Obviously, the actual layout will depend largely on the nature of the music, but you should find you have the flexibility to produce a tailor-made manuscript for almost any piece you wish to write.

As written, the program uses normal (bi-directional) printing for the sake of speed, but the alignment of the verticals tends to suffer slightly as a result.

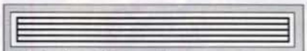
If a better quality of print is required, the following line may be added to select unidirectional printing, though this will double the printing time:

```
695 VDU1,27,1,85
```

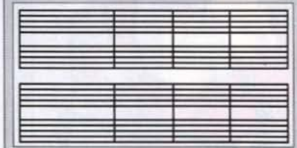
● *So there you have it, easy music staves for every occasion and just in time for writing out all those parts for Christmas carols.*

Listing for a Listz

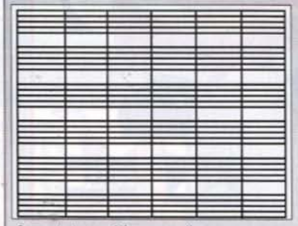
Alan Hampson offers composers a neat way of producing manuscript paper for their music



Single stave, 1 bar per line



Two 2-part staves, 4 bars per line



6–part stave, 6 bars per line

```
   10 REM > <basicsave$dir>.Stave Print
   20 REM by Alan Hampson
   30 REM (c) The Micro User
   40 MODE6:PRINT"Musical Stave Print"
   50 ONERRORGOTO150
   60 DIMm%(8)
   70 m%(1)=10:m%(2)=6:m%(3)=4:m%(4)=3
   80 m%(5)= 3:m%(6)=2:m%(7)=2:m%(8)=2
   90 REPEAT:PROCinput:REPEAT
  100 PRINT'" ";Q%*N%;" bars of ";P%;"-p
art..."
  110 PROCprint:CLS:*FX15,1
  120 PRINT'"Another identical sheet (Y/
N)?"
  130 REPEAT:G%=GET AND &DF:UNTILG%=78 O
R G%=89
  140 UNTILG%=78:UNTILFALSE
  150 VDU3:REPORT:PRINT" at ";ERL:END
  160 :
  170 DEFPROCinput
  180 PRINT'"Select grouping..."
  190 PRINT'" 1. Single staves, up to 10
 per page"
  200 FORA%=2TO8
  210 PRINT" ";A%"-part staves, up to "
;m%(A%);" per page":NEXT
  220 REPEAT:P%=GET-48:UNTILP%>0 ANDP%<9
  230 PRINTTAB(36,P%+5);P%
  240 M%=m%(P%)
  250 PRINTTAB(1,15)"How many staves (1-
";M%;")?";
  260 IFM%=10 PRINTTAB(1,16)"(Press : fo
r 10)"
  270 REPEAT:N%=GET-48:UNTILN%>0 AND N%<
=M%
  280 PRINTTAB(36,15);N%
  290 PRINT" How many bars per stave (1-
6)?";
```

➤

Procedures

input	Requests the selection details.
print	Prints a set of staves.
multi	Prints continuations for multi-part staves.
line	Prints a single horizontal ruled line.
join	Prints a single continuation line.
prton	Turns on and sets up the printer.

Main variables

A% B% C%	General loop counters.
G%	Reply to another sheet question.
J% K%	Loop counters within procedures.
L%	Length of current bar.
M%	Maximum staves of chosen grouping.
N%	Actual number of staves chosen.
P%	Number of parts chosen.
Q%	Number of bars per line chosen.
S%	Number of extra characters at start of line.
a% b% c%	Control code parameters to PROCline.
m%(8)	Maximum staves per sheet for each grouping.

➤

```
300 REPEAT:Q%=GET-48:UNTILQ%>0 ANDQ%<7
310 PRINTTAB(36,16);Q%
320 L%=60 DIVQ%:S%=9-Q%:ENDPROC
330 :
340 DEFPROCprint:PROCprton
350 FORC%=1TON%
360 PROCline(135,136,130)
370 FORA%=1TO3
380 PROCline(132,131,128):NEXT
390 IF P%>1 PROCmulti
400 PROCline(137,138,129):PRINT'''''
410 NEXT:VDU3:ENDPROC
420 :
430 DEFPROCmulti
440 FORA%=1TO P%-1
450 PROCline(132,131,128)
460 FORB%=1TO3:PROCjoin:NEXT
470 PROCline(132,131,128)
480 FORB%=1TO3
490 PROCline(132,131,128):NEXT
500 NEXT:ENDPROC
510 :
520 DEFPROCline(a%,b%,c%):VDUa%
530 FORJ%=1TOS%:VDU133:NEXT
540 FORJ%=1TOQ%
550 FORK%=1TOL%:VDU133:NEXT
560 IFJ%=Q% VDUb% ELSE VDUc%
570 NEXT:PRINT:ENDPROC
580 :
590 DEFPROCjoin:VDU134
600 FORJ%=1TOS%:VDU32:NEXT
610 FORJ%=1TOQ%
620 FORK%=1TOL%:VDU32:NEXT
630 VDU134:NEXT:PRINT:ENDPROC
640 :
650 DEFPROCprton
660 PRINT'" Insert paper and press SPA
CE when ready";:REPEATUNTILGET=32
670 VDU2,1,27,1,108,1,8,1,27,1,109,1,4
,1,27,1,56
680 IFP%>4 V%=16 ELSE V%=20
690 VDU1,27,1,51,1,V%
700 ENDPROC
```

Get it right ✓

```
 10 =    0 0     210 = 5175 6
 20 =    0 0     220 = F8A4 A
 30 =    0 0     230 = E36A 3
 40 = 134B B     240 = 1B18 6
 50 = A9BA 1     250 = 1126 8
 60 = 81AA 6     260 = 834B C     410 = 449B E     560 = D243 0
 70 = 1AEE C     270 = 16C3 F     420 = 9719 4     570 = 8D07 7
 80 = 71F9 3     280 = 57B4 D     430 = A016 6     580 = 9719 7
 90 = D583 1     290 =  CE6 0     440 = 935B D     590 = 9C97 0
100 = 9B3C A     300 = DE84 1     450 = 55CC 7     600 = 9AA0 0
110 = 8BAD F     310 = AA2B 2     460 = D052 4     610 = 8939 D
120 = 82B3 B     320 = 7463 E     470 = 55CC 0     620 = 3BB5 5
130 = 7732 5     330 = 9719 0     480 = 7CBC A     630 = D4D8 A
140 = 2D6C D     340 = DC58 6     490 = 2F57 4     640 = 9719 9
150 = C84F E     350 = B1B8 4     500 = E531 6     650 = 91B7 E
160 = 9719 C     360 = 3FEE B     510 = 9719 0     660 = F12B D
170 = EA07 3     370 = B25C A     520 = 6313 1     670 = 2C00 F
180 = B696 2     380 = 2F57 9     530 = 8E66 E     680 = 3A14 B
190 = 29E3 3     390 = 6FDB E     540 = 8939 B     690 = 2DCB 5
200 = 5A67 7     400 = 6FED E     550 = 3EAD 7     700 = ED0F 2
```

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Artful or artless?

Duncan Evans clarifies the state of the art with ARCtist

Product: ARCtist
Price: £24.95
Supplier: The Fourth Dimension, 1 Percy Street, Sheffield S3 8AU.
Tel: 0742 700661
Requirements: BBC A3000 and Archimedes range

THERE can be few things so annoying as having a computer with excellent graphics capabilities, only to find that you can't exploit them to the full.

Witness then the burgeoning graphics market, as knowledgeable software houses seek to exploit the nation's need for artistic expression beyond !Paint and !Draw.

Topologika have recently brought out Imagine, while The Fourth Dimension have countered with the budget package ARCtist, not to mention the old favourites Pro-Artisan by Clares and Atelier from Minerva.

ARCtist is a 256 colour package only, so Mode 15 needs to be set before loading the program to the menu bar. Do set your mode before booting the program or it'll hang up.

It doesn't truly multi-task, but you can drop out of the package, perform some other tasks and click, to find that the screen you were working on has been perfectly preserved.

It is also unprotected, so back-ups can and should be made.

Before you run ARCtist, and undoubtedly with an eye to over-eager students, a click of the menu button on the icon bar will bring up a mask list that allows any function of the package that you don't want to be used to be disabled – useful for education.

Then, with a click on the icon, the screen and menu appear. The menu is a thin strip down the left side of the screen containing all the program functions.

Generally the select button accesses the functions, clicking Menu will select the colour underneath the cursor as the new colour to paint with, and Adjust either toggles the main menu or, if in the midst of a process, takes you back one stage.

The standard geometric shapes are naturally presented, with circles, ellipses, triangles, oblongs and a variety of multi-sided shapes under the polygon banner.

These can be outlined or filled. If filled with a solid colour or one of six user-defined fill patterns. None are set initially, and only two are provided on the program disc. Functions such as draw, spray and line can be accessed simply by clicking on the requisite panel option, with a further click bringing up submenus containing line or dot size.

Most of the functions operate in this way, which is not, of course, how Acorn would like it done, but it doesn't make it harder or any easier, merely different.

The mouse control is nice and smooth which, coupled with the general drawing tools, makes for a good painting experience. A small area can be zoomed into. You cannot define the size of the area, nor the magnification, which is not high. Also the mouse cursor becomes very unsteady when trying to paint into the area.

As simplicity is the name of the game, you cannot perform any function apart from basic pixel editing while in the zoomed area.

Text is an area where ARCtist promised to excel. There are three fonts: Broadway, Plantin and Flash. Simply enter your stream of text, choose the colour you want and click on exit.

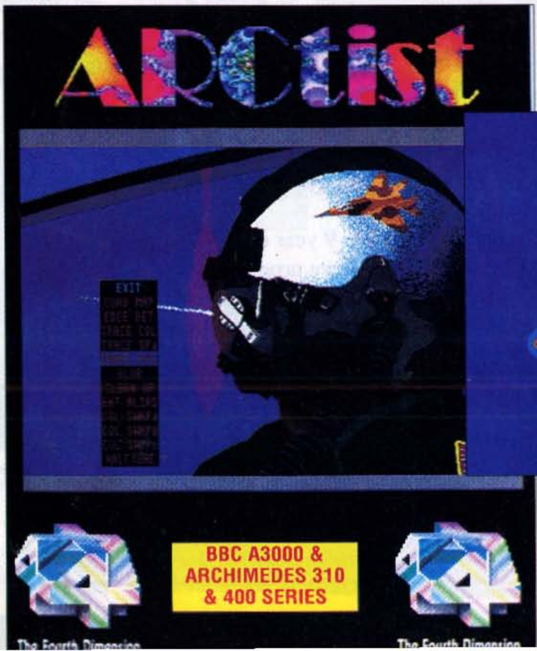
Then position the pointer where you want one corner of your text box to be. Move the mouse to size the box then click again and the text will be drawn to fit into the box.

This is a fabulous idea, especially since the fonts do not use the system font workspace or access the disc in any way. Simple banner headlines, posters and the like are all easy to produce.

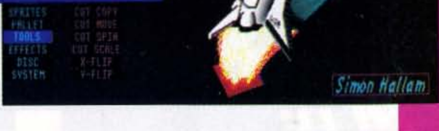
But beware, ARCtist doesn't get on very well with other programs which may be hanging around the DeskTop, and as you try to position your box you'll be greeted by an address exception.

You will then be unceremoniously

➤



The Mandelbrot Set



dumped back to the DeskTop.

The fill option is very fast and the sprites are handled very well. With them you can cut out sections of the screen, name them as sprites and save them. There is even a basic animator section which is again simple and great fun to use.

I particularly liked the ability to rotate and scale the sprites, though the drawing with them was limited to having to click for every point, you couldn't simply hold the button down and really draw.

The colour pallet – their spelling – can be seen in one corner of the screen, and is available in magnified form from the menu bar. Any operation that was selected before you went to the palette becomes deselected once a colour is chosen.

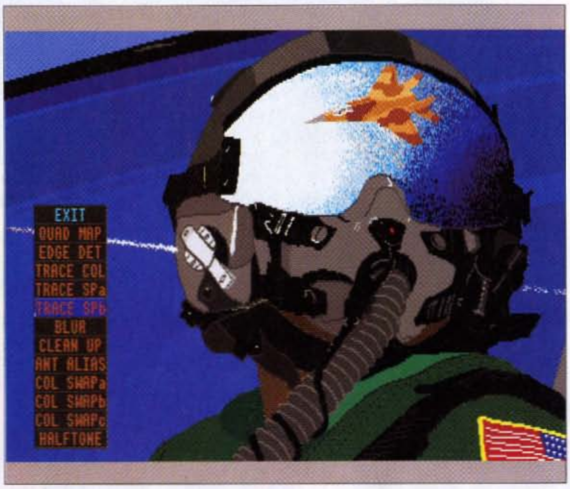
Some sophisticated functions turn up in the tools and effects options. Rectangular sections of the screen can be remapped on to irregular four sided shape. Though this is painfully slow, it is very effective.

The only really impressive aspect of ARCtist is in its ability to cut and paste or cut and remap areas of the screen at various angles, and these functions are to the fore in the tools section.

Colours can also be swapped and sections of the screen blurred or anti-aliased – also fairly sophisticated, but again very slow.

At least there didn't appear to be any bugs in the file handling when I used a machine with the ADFS as the default filing system, so what I did manage to create could be saved to be worked on another day.

However, when I tried to work on an A3000 with IDE hard drive and the PD utility PlaceIt and other useful bits on the icon bar, ARCtist totally crashed the machine. Having removed all the other programs it would run, but load and save wouldn't work. This kind of program egotism should have gone out the window a long time ago.



Summary

This program first saw the light of day as Arctist, which was pre-Risc OS, it was then re-issued as the PD program Arctist+ and has now been changed to this new version.

It has some very powerful features, but unfortunately too many shortcomings. The sloppiness of certain functions, allied to the fact that I was able to crash the program within half an hour.

Fourth Dimension stress the fact that it is a simple and inexpensive package, but is this really an excuse for sloppy programming? And even if the painting part is easy to use – and it definitely is – why do I have to clear out my DeskTop, change to Mode 15 and type *ADFS before I can use the thing?

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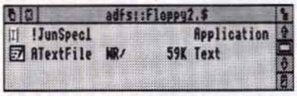
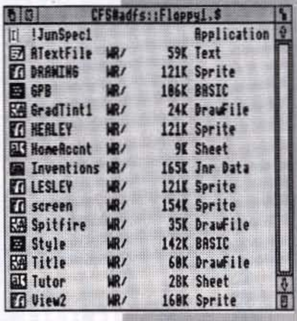
And unlike any other compression utilities it's lightning fast and works exactly like all other filing systems and is compatible with all application programs.



```
adfs::Floppy2.$
!JunSpec1                    Application
ATextFile  WR/          59K Text
```

The floppy disc on the left holds 2 files totalling 757,502 bytes. Using Compression, the floppy disc on the right holds 15 files totalling 2,032,669 bytes.



```
CFS#adfs::Floppy1.$
!JunSpec1                    Application
ATextFile    WR/         59K Text
DRAWING      WR/        121K Sprite
GPB          WR/        106K BASIC
GradTint1    WR/         24K DrawFile
HEALEY       WR/        121K Sprite
HomeAccnt    WR/          9K Sheet
Inventions   WR/        165K Jnr Data
LESLEY       WR/        121K Sprite
screen       WR/        154K Sprite
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Title        WR/         60K DrawFile
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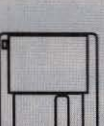


TOP BANANA COMPETITION

Your chance to share in £500 of prizes

Sampled graphics and super sound

NOT only can you buy Top Banana as a computer game, but also a mix of the soundtrack is now available on a 12in single. By using chaos theory Hex produced the game soundtrack which mutates creating complex musical patterns.

To celebrate this and the release of a video PLUS the new game we have a competition exclusively for the readers of ***The Micro User.***

Following an ecological theme Top Banana pits you against the might of bulldozer and business as you try to escape from and stop the rising water level caused by global warming. Armed with only love to remove your obstacles you must work you way to the top of each screen against a psychedelic background and accompanied by ever-changing music.

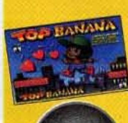
On later levels you'll encounter polluted cities and mutated creatures until at last you reach the Mind-Scape. All the sprites for the program are stored in a folder on the game disc which you can open and edit – you can design your own baddies or use Hex's sprites elsewhere.

The Prizes

To the first 10 winners Hex's full Top Banana Set

Top Banana
– the game

Top Banana
– the video



Top Banana
– the single

Top Banana
– the T-Shirt

While for the 25 runners-up there is a superb Top Banana T-shirt

The Questions

As Top Banana takes you into the depths of the endangered rain forests our questions are all to do with conservation.

The following five statements are either true or false. Decide which, and put your verdict in the five boxes in the form below. The closing date for this competition is December 31.

1. An area of tropical rain forest equivalent to six football pitches is destroyed each minute.

2. In Top Banana you can stop the rising water level caused by global warming by using your heart.

3. CFCs in aerosol and fast-food packaging are one of the causes of holes in the ozone-layer.

4. Rain forests absorb the impact of rain, protecting fragile soils from erosion.

5. Using new rather than recycled paper preserves the hardwood trees of the world's forests.

Information on conservation was provided by Friends of the Earth. You can learn more about conservation by contacting them at 26-28 Underwood Street, London N1 7JQ. Tel: 081-490 1555

Entry Form

Name:

Address:

Postcode: Tel: Age:

ANSWERS

1 ☐ **4** ☐

2 ☐ **5** ☐

3 ☐

Now return your completed entry form to Top Competition,
The Micro User*, Europa House, Adlington Park, Macclesfield SK10 4NP.*

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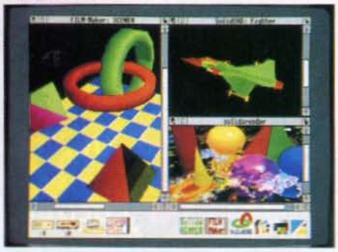

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"Puts Silicon Vision at the top of the CAD market"
- A&B Computing November 1990.

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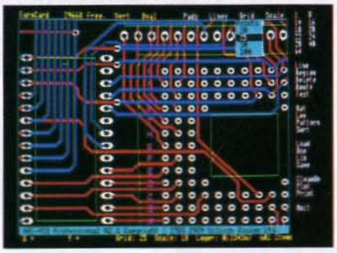
ARC-PCB Schematics



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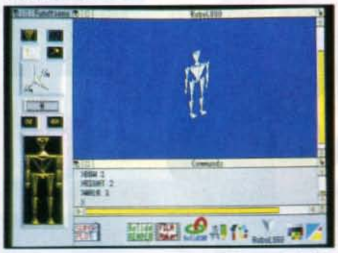
RoboLOGO



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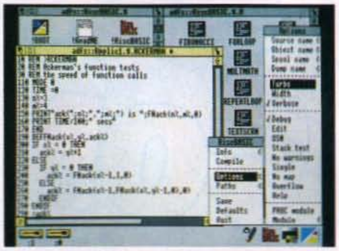
"Takes turtlegraphics and LOGO programming into a new dimension. The things that the robot can do are only limited by imagination!" - Educational Computing April 1991.

RiscBASIC



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"If you are looking for THE compiler to go for, and are confused about which one deserves to win the very public battle that has been raging in the advertisements, well my preference is for RiscBASIC"
- RISC USER August 1989.

"very useful indeed for development work...produced significantly more efficient code" - Micro User July 1989.

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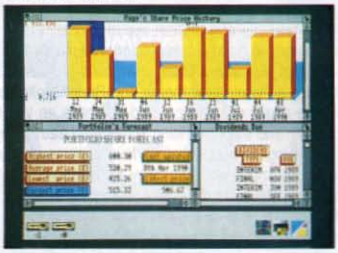

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- Archimedes World March 1991.

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Product Catalogue

For more details on these and other software products in our range please enquire for a free copy of Silicon Vision's 'Desktop Solutions' product catalogue.

The right connections

Mike Cook looks at a commercially available I^{2}C interface for the Archimedes.

Product: AnDi Odule
Price: £49 plus VAT
Supplier: Ian Copestake Software,
10 Frost Drive, Wirral, Merseyside
XL61 4XL.
Manufacturer: Baildon Electronics

OVER the past few months I have been looking at an I^{2}C interface in my Body Build articles, I was a natural candidate to review this when it arrived in the office. Essentially if offers the same basic capability as my kit but is more expensive.

So do you get anything extra for the extra money? Indeed you do.

The AnDi, a contraction of *AN*alogue and *DI*gital, offers eight digital input and output pins as well as an analogue output and four analogue inputs.

Where this differs from the Body Build interface is that the digital outputs are buffered with an open collector driver. This can switch directly a relay or other device drawing up to 400mA at 50V. There is an option replacement buffer to increase this up to 90V if required. Note that these voltages are not generated by the interface but are the maximum it can switch. In addition, the buffers have a clamping diode to prevent back EMF when switching inductive loads like relays. The inputs have two series resistors to provide a limited degree of protection.

On the analogue side simple series resistors serve as protection and there is no buffered analogue output like the Body Build device.

All the inputs and outputs are available from one of three banks of screw connectors. The I^{2}C and power lines are brought out to the same Molex plug I used on the Body Build interface.

You might remember we standardised on the pinout, so the two products are intermixable. You can chain several devices and three address links are provided to change the address of the Odule.

The AnDi Odule uses the PCF8574 digital chip whereas the Body Build interface uses the PCF8574A, which means that the addresses can't clash. There could be a clash on the analogue side. However, the AnDi Odule uses the same three address links for the programmable address of both the analogue and digital chip, so clashes are easily avoided.

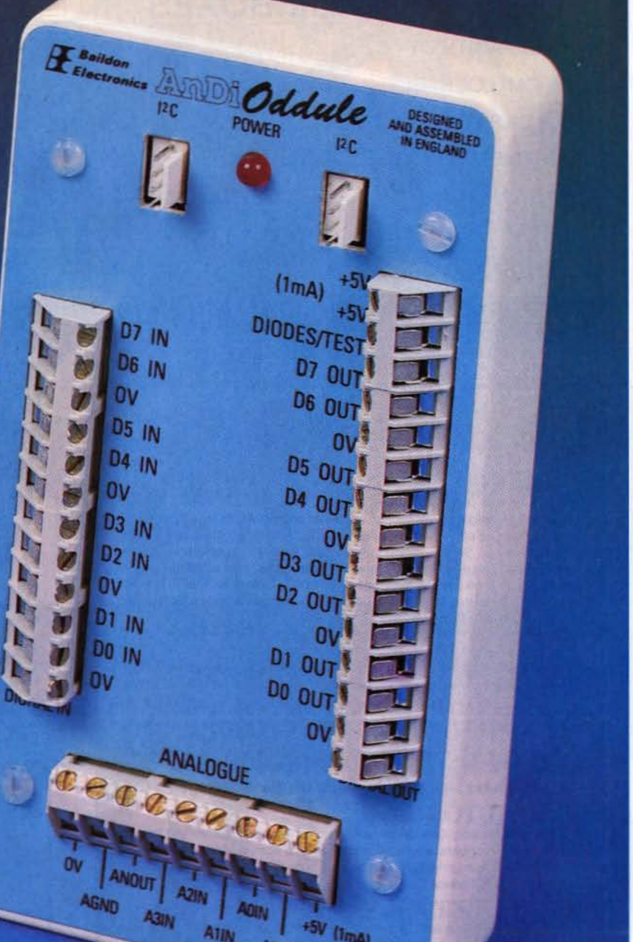
The unit is built on a double sided printed circuit board to a very high standard and is totally enclosed in a small plastic box. A neat method of getting the I^{2}C signals out of the computer consists of a 64 pin plug mounted on a very small circuit board. This taps and smooths the power as well as getting access to the bus signals. It plugs directly into the expansion socket or a backplane.

The manual contains 24 pages of useful information. There is a full description of the product and how to drive it. There are circuit diagrams of sections of the Odule and examples of its use along with a demonstration software listing. Finally there is a list of forthcoming podules and support software.

Anything you can do with the Body Build interface you can carry out with the AnDi Odule, and more. The buffer drivers allow easer control of relays and the enclosed electronics appeals to some people.

Summing up

This is a well made product offering good features and good value for money.



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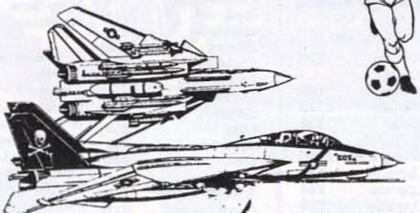

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Plus of course our no quibble 12 months FREE On-Site Maintenance on all Archimedes Micros.

Archi Accessories

• 3.5" 800K 2nd Floppy Drive (305/310)	£118
• 5.25" 800K external Floppy Drive	£85
• I/O Podule (Analogue/User/1MHz bus)	£79
• MEMC 1A Upgrade	£42
• MIDI add-on to I/O Podule	£27
• MIDI Expansion Card	£65
• Sound Sampler Mono (Armadillo)	£129
• Sound Sampler Stereo /Midi (Armadillo)	£186
• Chromalock Podule (Wild Vision)	£275
• Econet Network Board	£42
• Archimedes IEEE Interface Adaptor	£269
• Dual RS232 Podule	£195
• 16 bit parallel I/O Card	£195
• Archi replacement mouse – New design	£32
• PC Emulator v1.7	£85
• Software Developers Toolbox	£149
• Floating Point Unit	£455
• SCSI Adaptor Expansion Card	£156
• Keyboard Extension Lead	£6
• 2 Podule Backplane	£25
• 4 Podule Backplane	£38
• Fan for above backplanes	£8
• Risc Os Extras Software Disc	£5
• Ethernet Card	£220

A3000 Accessories

• 3.5" External Drive	£95	• Monitor Stand	£15
• Technical Manual	£39	• Serial Upgrade	£17
• A3000 Dust Cover	£5		
• A3000 plus Monitor Dust Cover			£9
• A3000 User Port/Midi Upgrade Card			£44
• A3000 User/Analogue/IIC I/O Card			£42
• A3000 External Podule Case			£13

NEW

ARM 3 Turbo Card

Here it is at last – the all new Mark 2 version of Watford's highly acclaimed ARM 3 processor board for the Archimedes and now also the A3000 series computers. Using the latest surface mount technology on a high quality four layer circuit board we have reduced the overall size to a mere 53mm x 45mm, and the cost to only £199. Mk II upgrade will increase the speed of your micro by a factor of 3 to 6.

Any competent A300 or A400/1 series micro owner can fit the upgrade himself, as we provide full fitting instructions and a special ARM chip extraction tool. However for A3000 micros and those not wishing to perform the upgrade themselves, we will collect, upgrade and return your micro by courier service, at an additional cost of £35.

(A300 and old A440 series owners please note – you will need to upgrade to MEMC1A for ARM3 to work.)

Special Price £249

All our A3000 ARM 3 upgrades are fitted by Acorn approved Board level & surface mount technology Service Centre

Archimedes RAM Upgrade

All our memory upgrades are simple to fit. No soldering required. Fitting instructions supplied.

• **R302**-A3000 –	to 2MB RAM Upgrade	£39
• **R303**-A3000 –	to 2MB RAM Upgrade (expandable to 4MB)	£65
• **R304**-A3000 –	to 4MB RAM Upgrade	£139
• **R311**-A305 –	to 1MB RAM Upgrade	£30
• **R312**-A305/310 –	to 2MB RAM Upgrade	£149
• **R314**-A305/310 –	to 4MB RAM Upgrade	£265
• **R412**-A410/1 –	to 2MB RAM Upgrade	£35
• **R413**-A420/1 –	to 4MB RAM Upgrade	£64
• **R414**-A410/1 –	to 4MB RAM Upgrade	£98
• **R810**-A410/1 –	to 8MB RAM Upgrade	£599
• **R820**-A420/1 –	to 8MB RAM Upgrade	£569
• **R840**-A440/1 –	to 8MB RAM Upgrade	£499
• **R814**-R140 –	to 8MB RAM Upgrade	£499

Archimedes Hard Disc

Watford's ST506 Hard disc drives for A310 & A410 series fit internally into the space provided.
P.S. A310 upgrades require a backplane and a fan.

• **3HDP** – Hard Disc Podule only	£135
• **3HD20** – 20Meg H' Disc + Podule for 310	£235
• **3HD40** – 40Meg H' Disc + Podule for 310	£345
• **3HD50** – 53Meg H' Disc + Podule for 310	£474
• **4HD20** – 20Meg Hard Disc for 410	£129
• **4HD40** – 40Meg Hard Disc for 410	£215
• **4HD50** – 53Meg Hard Disc for 410	£335
• A3000 20Meg Hard Disc + Podule	£299
• A3000 40Meg Hard Disc + Podule	£429

For Archimedes IDE Hard Disc turn to page 14

Convert your Archi 410 to a 420 or 440 with Watford's unique Upgrade Kits

UP10 – to 2MB RAM + 20MB Hard Disc	£165
UP15 – to 2MB RAM + 40MB Hard Disc	£252
UP20 – to 4MB RAM + 20MB Hard Disc	£232
UP30 – to 4MB RAM + 40MB Hard Disc	£318
UP40 – to 4MB RAM + 53MB Hard Disc	£438

Graphics, Art, Design & Games

GRAPHICS

ARCtist	£19
ARCticulate	£19
Atelier	£65
Artisan II	£45
Artisan Gallery	£16
Autosketch II	£65
Craftshop 1 & 2	£28
Euclid 2	£50
Graph Box	£59
Graphbox Professional	£118
HotLink Presenter	£40
Kermit	£46
Mogul	£17
Poster	£79
Pro Artisan	£70
Prime Art	£69
Render Bender	£58
Snippet	£21
Tween	£21

GAMES

Air Supremacy	£20
ArcPinball	£18
ARCticulate	£19
Apocalypse	£15
Arcade 3 Compil.	£12
Arcade Soccer	£15
Arc Pinball	£18
Arc Trivia	£18
Avon	£16
Ballerina	£14
Blowpipe	£16
Boogie Buggy	£19
Break 147	£19
Bug Hunter	£14
Caverns	£14
Chess 3D	£14
Chocks Away	£14
Chocks Away Extra	£14
Conqueror	£18
Cops	£14
Corruption	£18
Crisis	£21
Drop Ship	£12
Enter the Realms	£19
Enthar Seven	£21
E-Type	£14
E-Type Designer	£13
E-Type Extra 100 miles	£13
Family Favourites	£15
Fireball 2	£19
Gumshoes	£19
Holed Out Designer	£13
Holed Out Golf	£13
Hostages	£15
Ibix the Viking	£14
Inertia	£13
Inter Dictor 2	£26
Iron Lord	£15
Jet Fighter	£10
Jiglet	£25
Jigsaw	£27
Lemmings	£22
Masterbreak	£16
Magpie	£39
Man at Arms	£16
MahJong Patience	£15
Manchester United	£19
Nevryon	£14
Olympics	£15
Pipe Mania	£17
Pirate	£16
Power Band	£18
Puncman 1 & 2	£16
Puncman 3 & 4	£16
Pysanki	£15
Quazer	£10
Real McCoy	£22
Real McCoy 2	£23
Redshift	£14
Return to Doom	£16
Revelation	£54
Repton 3	£15
Rotor	£19
Saloon Cars	£19
Splice	£25
Sporting Triangles	£24
Star Trader	£14
Superior Golf	£15
Super Pool	£19
Talisman	£12
The Pawn	£19
Thundermonk	£11
Timewatch	£24
Trivial Pursuit	£22
Twin World	£15
U.I.M.	£23
White Magic	£15
White Magic 2	£15
Wimp Game	£13
Worldscape	£16

Miscellaneous

Ancestry	£59
Arccomm 2	£38
Arcterm 7	£64
Armadeus Sound	£60
BBC DFS Reader	£6
Broadcaster Loader	£65
Compression (CC)	£POA
Equasor	£40
FlexiFile	£98
Genesis	£65
Genesis 2	£113
Hearsay Comms Pack	£50
Investigator 2	£22
JX Archi Colour Printer Driver for Citizen & Star	£15
Numerator	£66
Presenter 2	£35
Presenter Story	£145
Rainforest	£17
Revelation	£58
Rhapsody in Blue 2	£45
Speech!	£15
The Victorian	£17
Time Tabler	£549
Toolkit (Clares)	£35
Touchtype	£40
Tracer	£46
Vox Box	£47

Staff Vacancy

Watford Electronics are inviting Hardware and Software engineers to apply for positions in their new R & D team. Hardware engineers must be familiar with the Archimedes architecture and able to follow a project from conception to production. Software engineers should be proficient in ARM assembler or Acorn C, and able to write RISC OS applications and module code. Applicants should be well motivated and show experience in relevant areas. Qualifications are not as essential as your ability to produce innovative solutions to challenging problems. As a new member of the team you will be in a unique position to develop your career in a rewarding environment.

In the first instance forward your CV to Shiraz Jessa or Chris Honey.

Desk Top Publisher

Acorn's Archi DTP Package	£108
Impression 2 DTP Pack	£130
Impression Junior	£72
Expression-PS	£19
Tempest DTP Package	£90

More Archimedes Products
See Pages 3, 5, 6, 8, 10, 14

Archi Wordprocessors

Pendown Archi	£48	Archie Spell Master	£25
Wordwise + Disc	£24	PD Spellchecker	£40
Image Writer	£25	View	£45
Interword Disc	£24	Graphic Writer	£19
1st Word Plus – 2	£63	EasyWord	£30

Databases

AlphaBase	£36	Multistore v2.01	£185
Knowledge Organiser	£42		

Spreadsheets

Intersheet Disc	£24	Schema	£89
Viewsheet	£45		

Business Graphics

GammaPlot	£39	Sigmaplot	£39
Interchart Disc	£17		

Integrated Packages

• Logistix	£79	• Pipedream v	£149

- Desktop Office – Database, Graphs & Charts, Wordprocessor Spreadsheet, Communications £98
- Desktop Folio – Wordprocessor, Desktop & Interactive Publishing. Ideal for school environment. £85

A3000 I/O Card (User, Analogue & IIC)

This NEW versatile I/O Card from Watford, fits inside the A3000 and includes an Analog to Digital Converter, a User Port, and an InterIC (IIC) connector.

The card allows many of the peripherals developed for the BBC to be used with the Archimedes A3000. The ADC and User Port have the same pin out and connectors as the BBC computers.

Extensive RISC OS software is supplied to provide BBC OSBYTE calls for support of the ADC and User Ports, including the BASIC keyword ADVAL. The software provides extended RISC OS support for separate interrupts from both the ADC and User Ports, permitting easy interrupt driven operation.

The card is provided with all the software in ROM and is automatically loaded when the machine is turned on.

Peripherals connected to the ports can obtain up to 500mA of power at +5V. A fuse is fitted to the card to protect the A3000 from damage arising from accidental short circuit of the power output.

The card is provided with an extensive manual explaining installation, all software commands, connector pin outs, hardware addresses and example programs.

Features
- An 8 bit User Port with a standard 20 way IDC connector, compatible with the User Port on the BBC computers and the Archimedes I/O Podule.
- A 10 bit Analog to Digital Converter with a standard 15 way D type connector, compatible with the ADC on the BBC range of computers and the Archimedes I/O podule.
- An InterIC (IIC) Port with a 5 pin DIN socket to connect the A3000 to external IIC devices.

£42

Watford's Hands-On OPEN DAY

on

Sunday, 1st December 1991
from 10.00am to 4.00pm

at

250, Lower High St., Watford

Your ideal opportunity to shop for that Christmas stocking filler.

Archi Mouse Port Splitter

Our handy little splitter unit eliminates the risk of damaging your micro due to constant plugging and unplugging of the mouse by allowing you to connect both, a joystick and a mouse simultaneously to your Archimedes. £15

Silicon Vision

Gerber Plot	£95	Solids Render	£120
Solid CAD	£120	Solid Tools	£279
Super Plot	£28	Data Vision	£110
Super Dump	£22	Share Holder	£135
Arc PCB Professional			£275
Realtime Solids Modeller			£136

NEW Archimedes A300/A400 SCSI Hard Disc Offer
(while stocks last)

100MB Hard Disc Upgrade
complete with Controller card,
Cables, Formatter and Manuals

RRP: £999

Offer Price: £399

Archimedes to BBC Serial Link Mk 2

Using this simple data link, it is possible to solve all your BBC to Archimedes data transfer problems. The kit is supplied with a disk, and the necessary cable to connect the two computers.

New RISC OS Version **Only £15**

Archimedes External Disc Drive Interface

With this interface it is possible to connect almost any 5.25"/3.5" disc drive with its own power supply to the Archimedes. Upto 4 disc drives can be connected. Fully Buffered Board. NO SOLDERING is involved. Supplied complete with necessary lead.

• A300/A3000	£21	• A400	£25

Special Education Prices

All education establishments qualify for special education prices on micros, etc. Please write in or telephone (0923) 37774 or 50335 for written quotation.

LANGUAGES (Archimedes)

ISO-PASCAL; FORTRAN 77			£77 each
Assembler; LISP; Prolog X			£149 each
ANSI C Rel. 3	£125	BASIC Compiler	£77
Cambridge Pascal	£60	Logotron Logo	£45
Macro Assembler	£40	Risc Basic	£120
Robo Logo	£69	Risc FORTH	£110

Minerva's Archimedes Software

EasyWord	£18	Mailshot*	£27
Home Accounts	£35	Reporter*	£27
Time Tabler	£549	School Admin*	£65
System Delta	£59		
System Delta Program Reference Manual			£29

** Requires System Delta to operate*

Stand alone Business Accounts Packages
Sales; Purchase; Order Processing and Invoicing; Nominal; Stock management

£79 per module

or Complete Business Package **£325**

ULTIMUM – Archimedes A3000 Podule Racking System

THE ONLY LOGICAL WAY TO EXPAND YOUR A3000 COMPUTER

The accepted standard for Archimedes computer expansion is the Acorn Podule, designed initially to fit the old 310, and also for the later A400 and A400/1 series micros. The podules fit inside these computers up to four at a time. The A3000 is the little brother of the family, but can only have one podule at a time, plugging into the back of the computer.

Other attempts have been made to expand the A3000 by trying to introduce a 'mini-podule'. This is impractical for many reasons, amongst which is the reluctance of manufacturers to produce them. Nobody wants to re-design podules already produced. Some cannot be produced on a 'mini-podule' as they are far too complicated and simply wouldn't fit.

Watford Electronics listens to the demands and requirements of its customers, and we are glad to say that we have come up with the only real solution to the A3000 expansion problem. The ULTIMUM Podule Racking System allows up to three FULL SIZE standard Archimedes 300/400 series podules to be fitted to the computer. In addition, there is also provision for a hard disc drive and a podule to be fitted internally.

Since the ULTIMUM Podule Racking System takes proper full size podules, you will be able to use any of the currently available peripheral equipment, from companies like Computer Concepts, Armadillo, Acorn and of course, our own brand.

Fitting the podules to 'ULTIMUM' is simple. They are neatly fitted inside the metal case of the rack, avoiding the previously untidy method of hanging the podule off the back of the computer, risking damage to both, it and to the computer.

'ULTIMUM' has its own power supply, so no strain is put on the A3000 power supply. There is also an IEC mains output socket for an Acorn type monitor so reducing the number of plugs required to go to the mains. The ULTIMUM is rigidly clamped over the top and under the computer, and allows direct access to the floppy disc drive and reset button, rather than obstructing access as on other systems. The mounting method employed is so firm that the computer could even be safely transported without the assembly falling apart.

Price: £125

Continued→ → → → → → → → →

BBC MASTER

MASTER 128K Micro incl. Acorn's View, Viewsheet, ADFS, BASIC Editor & TERMINAL plus FREE OFFER (see below) **£399**

FREE OFFER

A 5.25" Double Sided, 40/80 track switchable 400K Disc Drive complete with cables and a Utilities disc incl. 2 games, plus

Gemini's OFFICE MATE & OFFICE MASTER packages on Disc consisting of: Database, Spreadsheet, Beebplot graphics. Accounts packs: Cashbook, Final Accounts, Mailist, Easyledger, Invoice & Statements, Stock Control.

FREE with every BBC Master purchased from us during November

Add-Ons & Accessories

Econet Module for the Master	£45
Twin ROM Cartridge for Master	£9
Quad ROM Cartridge for Master	£14
Master Reference Manual I	(No VAT) £14
Master Reference Manual II	(No VAT) £14
Master Advance Ref Manual	(No VAT) £17
64K Upgrade Kit for B+	£32
Acorn 1772 DFS Kit complete	£49
ECONET Upgrade Kit for BBC B	£42
ALL ECONET UPGRADES Available	
ARIES' IEEE Interface for BBC B & Master	£238
Morley Teletext Adaptor with ATS Rom	£99
Ecolink	£270

Z88 Portable Micro

£179

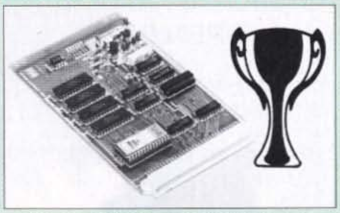
FREE

With every Z88 purchased from us, we are giving away absolutely FREE, a Z88 to BBC Interface Link, 4 rechargeable batteries and a compact Mains Battery Charger worth £38.

Z88 ACCESSORIES

• 32K RAM Pack or 32K EPROM Pack	£16		
• 128K RAM Pack or 128K EPROM Pack	£32		
• 512K RAM Pack	£86		
• Z88 Eprom Eraser Unit	£38		
• Z88 Spellmaster for Pipedream	£40		
• Z88 Carrying Case	£8		
• Z88 Computing Book	£9.95		
• AA Nicad Rechargeable Battery	£1.50		
• Battery Charger Compact & Fast	£6		
• Z88 Serial Printer Cable	£8		
• Z88 Parallel Printer Cable	£18		
• Z88 to Archi Link	£15		
• Z88 to BBC Link	£8	• Z BASE	£56
• Z88 to PC Link II	£27	• Z TAPE	£42
• Z88 to Macintosh	£32	• Z TERM	£42
• Z88 Mains Adaptor	£9	• Z88 Modem	£114

Archi Real-Time Digitiser



Now supplied with NEW RISC OS Version Software

Watfords' Archimedes Video Digitiser is the most sophisticated digitiser ever designed for a micro. It provides a fast and flexible means of capturing images from a video camera or recorder for display and manipulation on the Archimedes range of Micros. Off-air televison signals may also be digitised via a video recorder or TV tuner. Please write for further details.

Price £175

A Set of Colour Filters for colour image grabbing using a video camera	£16
New Risc-OS Software Upgrade	£39

Archi Graphic Tablet

The Archi Graphic Tablet offers performance and accuracy comparable to other tablets priced at well over £400, and has the useful addition of a liftable cover, which can hold tracing material or menu templates securely. The package is supplied complete with sophisticated Archi software. (Now, fully LinCAD compatible. Recommended by Linear Graphic for use in Education).

(FREE this month, PC Mouse Drivers & Art package)

Special Price £199

(Price includes Tablet, Leads, Software & Puck)
Stylus Optional Extra **£15**

Archi Graphic Tablet Junior. Working area 9" x 6". Price includes Stylus **£125**

Disc Plonker Rack

When using ones micro, there is a tendency to have more than one Disc on the desk. This exposes them to the hazards of fingerprints, scratches, dust, coffee and an untidy desk. Why not protect your valuable data from all these hazards with the help of our extremely handy and low cost DISC PLONKER RACK. Holds up to eight 5.25" discs.

Protection at Only: **£2**

Acorn & Watford DFSs

• Watford sophisticated DFS ROM	£16.00
• Watford DFS Kit complete	£69.00
• We will exchange your existing ROM for Watford's ultimate DFS ROM at only	£12.00
• DFS Manual (comprehensive)	£6.95
• Acorn DNFS ROM	£17.00
• Acorn ADFS ROM only	£25.00
• Acorn 1772 DFS ROM Kit	£49.00

(The single Density DFS system is now old technology. Like Acorn, Watford too have decided to replace it with the their more up-to-date 1770 DDFS interface. We have informed most of the software houses of this decision in order that they can ensure compatibility with our highly sophisticated and fully Acorn compatible DDFS).

Watford's MkII 1772

Single/Double Density DFS

Many of our customers have wanted to use our superior DDFS and Acorn ADFS together. Now our Mk II DDFS Board with its 1770 Disc Controller, has been adapted to allow the use of Acorn ADFS as well. It also has all the commands of the Acorn's 1770 DFS, plus the added features.

Added features include:

- Acorn ADFS compatible – Use ADFS on our DDFS board.
- Tube host Code – No longer any need to have the DNFS in your machine to use Co-Processors, even the CoPro and Master 512.
- Auto 40-80 Track sensing – no need to fuss with 40/80 track switches (even works with protected disks).
- An extremely powerful 8271 emulation – ensuring compatibility with almost all software.
- New low profile – small footprint board.
- Fits with all third party ROM boards.
- Option to double the speed of file handling operations – BPUT and BGET.
- Operates in both single and double density modes.
- OSGBPB has been recoded, increasing still further the speed of file handling.

Please note that not all DDFS's are capable of providing either the full 80% storage increase or of allowing a file the full size of the disk – Ours allows both of these!

If you already have a DDFS (any manufacturer), and wish to upgrade to our MkII version, then simply return your existing ROM and DDFS board and we will supply the new DDFS for only **£39.00.**

• SPECIAL PRICE	**£44.00**
• DDFS Manual	(No VAT) **£6.95**
• We will exchange your existing DFS Kit for our sophisticated DDFS for only	**£30.00**

Please note, as the MkII DDFS is a hardware and sofware upgrade, it is not possible for existing Watford DDFS users to simply exchange the ROM for the new version.

3M – Diskettes

3M – SCOTCH Diskettes with Lifetime warranty from Watford Electonics your 3M Appointed Distributor

• *10 x 5.25" S/S D/D 40T (744)*	*£5*
• *10 x 5.25" D/S D/D 40T (745)*	*£5*
• *10 x 5.25" S/S D/D 80 Track (746)*	*£7*
• *10 x 5.25" D/S D/D 80 Track (747)*	*£7*
• *10 x 5.25" 1.6M D/S D/D High Density for IBM XT and AT*	*£9*
• *10 x 3.5" S/S D/D 40/80 Track*	*£7*
• *10 x 3.5" D/S D/D 40/80 Track*	*£7*
• *10 x 3.5" Double Sided High Density*	*£13*

Top Quality 3.5" & 5.25" Diskettes

To complement our range of Quality Discs and Disc Drives. WE are now supplying SPECIAL OFFER packs of 10 Lifetime guaranteed discs. Each disc has a reinforced hub ring. Supplied complete with selfstick labels and a Plastic Library Disc Box.

● *10 x **M3** 3.5" D/S D/D 80 Track*	*£7*
● *10 x **M9** 3.5" D/S High Density*	*£12*
● *10 x **M4** 5.25" S/S D/D 40 Track*	*£5*
● *10 x **M5** 5.25" D/S D/D 40 Track*	*£5*
● *10 x **M7** 5.25" D/S D/D 80 Track*	*£7*
● *10 x **M8** 5.25" D/S H/D Hi-Density*	*£9*
● ***M2** 3" Double Sided*	***£2.50** each*

VISA

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

Quality Disc Drives from Watford

All our Disc Drives are Double Sided and will operate in both Single and Double Density modes. All 5.25" Disc Drives are 40/80 track switchable. For ease of use, the switches are front mounted.

Various UK "manufacturers" of disc drives for the BBC Micro (more accurately, "packagers" label other manufacturers drives with their own name). We buy the high quality NEC and Mitsubishi drives in large quantities directly from the manufacturers, package them and sell them at "dealer" prices direct to the public.

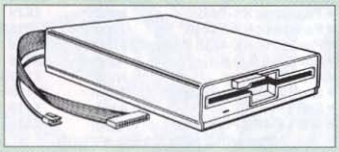
If you look around the popular BBC Micro press, you will find that the prices we quote for the top quality, new slimline disc drives are, virtually without exception, the best around. These prices, coupled with the backup of one of the country's largest distributors of BBC peripherals provides a superb deal.

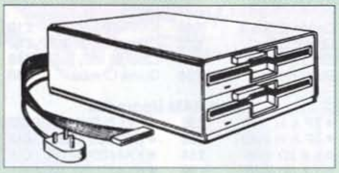
Unless you anticipate using dual drives in a fully expanded BBC system for long periods of time with little ventilation, then we suggest that our range of "CL" disc drives without the PSU (Power Supply Unit) would be quite adequate (extensive tests within our workshops have confirmed this). All drives are supplied complete with a SPECIAL UTILITIES Disc, Cables and Plugs. The Drives with power supply have a mains moulded plug for safety purposes. ***Ideal for Schools & Colleges.***

When using a BBC Micro, most people find themselves short of desk space. The Watford's BBC Micro plinths form an ideal way of recovering some of this precious space. Your BBC Disc Drive and Monitor can all occupy the same vertical footprint and still be comfortably situated. With the Watford Double Plinth, your Disc Drive is mounted vertically at one side, leaving a very valuable area directly in front of you for such useful items as spare discs, pen, paper, reference manuals, etc. Follow the trend with a Watford plinth. (Turn to the 6th page of our advert for the Plinths).

P.S. All our 5.25" Disc Drives with PSU are compatible with the Compact Micro. All you require is our special Compact Disc Drive cables designed by us.

"Test Bureau Approved for Use in Education"





Our Disc Drives conform to BS415

Type	Description	
	Disc Drive without PSU	
• **CLS400S:**	Single, 40/80 track 400K Double sided Drive	£72
• **CLD800S:**	Twin, 40/80 track, 800K Double sided Drives	£142
	Disc Drive with PSU	
• **CS400S:**	Single, 40/80 track, 400K Double sided Drive	£82
• **CD800S:**	Twin, 40/80 track, 800K Double sided Drives	£155

Special Cable to connect both 3.5" and 5.25" Disc Drives simultaneously to the BBC Compact £13

Disc Drive/DDFS Offer

- The popular CLS400S 40/80 track switchable disc drive.
- Watford's popular Mk II DDFS Interface (allows up to 720K storage). Will run both in single & double density modes.
- A comprehensive DFS Operating manual

Bargain at Only **£116** (Offer valid until stocks last)

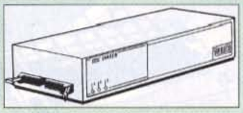
3.5" DISC DRIVE

These top quality 3.5" Double sided, 80 track, are attractively finished in BBC beige. They are supplied complete with all cables and a Utilities Disc.

Type	Description	
	Disc Drive without PSU	
• **CLS35:**	Single Disc Drive, 400K	£62
• **CLD400S:**	Twin Disc Drives, 800K	£109
	Disc Drive with PSU	
• **CS35:**	Single Disc Drive, 400K	£83
• **CD35:**	Twin Disc Drives, 800K	£126

(P.S. CS35 is supplied in a twin case with a blanking plate to enable easy expansion to a dual drive at a later stage)

Disc Drive Sharer

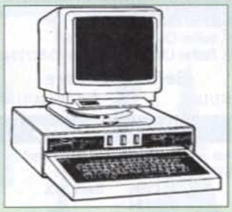


(Ideal for educational establishments)

A low cost alternative to the Econet system. Watford's Intelligent Disc Drive Sharer allows you to connect 3 BBC Micros (model B, B+ and Master series) to a single or double disc drive. Running under any DFS or DDFS, this intelligent unit will automatically queue the computers. Each computer has a status light dedicated to it. If it is green you will get immediate access to the disk, and red means that you are next in line. The unit plugs directly into the disc drive socket on each computer and is powered by the mains. (N.B. Not for use with ADFS.)

Price includes 3 Cables £55

Disc Drives in Monitor Stand



- **CDPM 800S** – Twin 5.25", 800K Double sided 40-80 track switchable disc drives mounted in an attractively finished Beige colour plinth for the BBC B & Master 128K micros. Supplied complete with integral power supply, cables and Utilities disc. The mains switch with neon On/Off light indicator, and the two 40/80 track switches are mounted on the front panel for ease of use.

£165

- **DP35 800** – Same as above except, one disc drive is a 5.25" and the other is 3.5".

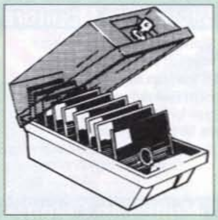
£154

Floppy Head Cleaner Kit

The heads in floppy drives are precision made and very sensitive to dirt. The use of Cleaner Kit is a sensible precaution against losing valuable data. It is recommended to clean the drive head once a week. it is very simple to use. Available in 3.5" & 5.25", please specify.

Price £4

Antistatic Lockable Disc Storage Units

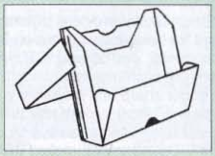


Gives double protection – Strong plastic case that affords real protection to your discs.
Antistatic helps avoid data corruption whilst in storage. The smoked top locks down.
Dividers and adhesive title strips are supplied for efficient filing of discs.

• **M35** – holds up to 50 5.25" discs	£4.95
• **M85** – holds up to 95 5.25" discs	£6.95
• **M25*** – holds up to 25 3.5" discs	£4.95
• **M50** – holds 50 3.5" discs	£6.50
• **M10** – holds 8 of No. 10 Data Cartridges	£15

* Not lockable

Plastic Library Cases



Holds up to 10 x 3.5" Discs.	£1.50
Holds up to 10 x 5.25" Discs.	£2.00

Dust Covers (For our Disc Drives)

Single CLS (without PSU)	£3.20
Single CS (with PSU)	£3.25
Twin CLD (without PSU)	£3.85
Twin CD (with PSU)	£3.90

Disc Albums

Attractively finished in black leather-look vinyl. Stores up to 20 discs. Each disc can be seen through the clear view pocket.

£4

Special Bulk Offer on Discs

(Supplied packed in Anti-Static Lockable Storage Units)
(Lifetime warranty on Discs)

PRICES
SLASHED

BULK PACK DISCS in lots of 100

Type	S/S 40T	D/S 40T	D/S 80T
• Without Sleeves 5.25"	£30	£35	£40
• With Sleeves 5.25"	£33	£38	£43
• 3.5" D/S D/D	£29 for 50		£52 for 100

Continued→ → → → → → → → →

Microvitec Monitors

• **1431** – Standard Resolution Monitor	£169
• **1451** – Medium Resolution Monitor	£209
• **Cub3000** Medium Res for A3000	£189
• **1441** – High Resolution Monitor	£359
• Dust Cover for Microvitecs	£5.50
• **Touchtec 501 Touch Screen**	£239

Now 3 years Parts & Labour warranty on all Microvitec Monitors

Multiscan Colour

• Eizo 9060S	£389	• NEC 5D	£1179
• Eizo 9070S	£579	• Taxan 770LR	£370
• NEC 2A	£245	• Taxan 775	£369
• NEC 3D	£323	• Taxan 795	£405
• NEC 4D	£629	• Taxan 875	£669
• VIDC Enhancer Board			£25

(P.S. Taxan 795 monitor is supplied with a FREE VIDC enhancer board)

NEW

Aries AlphaScan Monitor

Pound for Pound, the AlphaScan VGA Multiscan monitor provides the maximum performance and greatest flexlbility of any 14" colour monitor for the Archimedes micro.

Its multiscan circuitry provides automatic adjustment for frequencies between 30 and 60KHz horizontal, and 50 and 90Hz vertical. Its 0.28mm dot pitch high resolution tube provides super sharp text graphics, while a high speed (70/72Hz) refresh rate provides a flicker-free display easing the eye strain. The Multivideo VIDC Adaptor supplied (free) with the monitor allows high resolution operation in all screen modes.

£325

Philips Monitors

• **BM7502** 12" Hi-res Green Monitor	£67
• **BM7522** 12" Hi-res Amber Monitor	£67
• **CM8833** 14" Med. Res Colour Monitor	£165
• TV Tuner for CM8833 Monitors	£62
Dust Cover for Philips Monitors	£6

STAR BUY

- **PHILIPS 14"** Medium Res, dark glass, attractively finished Colour Monitor. A push-button switch toggles between Hi-Res monochrome green text mode and full colour display. (Please state the type of Connecting Lead you require).

ONLY £163

Refurbished Monitors

Philips 14" Refurbished Colour Monitors, same specification as the 'Star Buy' Monitors above	£119

(Offer valid while stocks last)

Spare Monitor Leads

BNC Lead for Zenith or Philips	£3
Skart Monitor Lead	£5
RGB lead for TAXAN Monitors	£3
Archimedes Colour Monitor Lead	£7.50

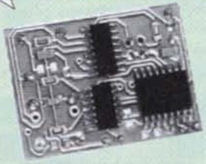
Anti Glare VDU Screen

These extremely effective, easy to install, 12" & 14" VDU screens eliminate harmful glare, improves contrast on colour monitors. Increases productivity in offices. A must for wordprocessor users.

£12

NEW

Watford VIDC Enhancer



This unique VIDC add-on board for the Archimedes, caters for all types of Multiscan and VGA monitor and mode requirements. There are 2 versions to suit all requirements. The multimode software supplied, provides all the new modes for the selected monitor type, including the now standard Computer Concepts modes. With VGA monitor, you are no longer restricted to a few modes. A WIMP application supplied on disc, allows new modes to be designed and existing modes to be modified for particular monitors.

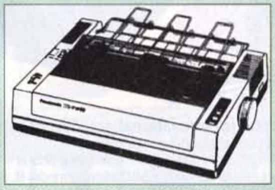
Super VGA VIDC Card: This provides support for both VGA and Multisync monitors. A unique electronic design allows the horizontal and vertical sync to be buffered and have the polarity changed under software control

£45

MultiVideo VIDC Card: As above but for MultiScan monitors only.

£25

Panasonic Printers



• **KX-P1123**	£144	• **KX-P1654#**	£349
• **KX-P1124I**	£194	• **KX-P1695**	£285
• **KX-P1170**	£109	• **KX-P2624#**	£359
• **KX-P1624**	£285		

# Price includes 12 months On-site warranty

Panasonic Accessories

Cut Sheet Feeders

KX-P1592/1595 (P32)	£175	KX-P1540 (P35)	£175
KX-1124 (P36)	£79	KX-P1180 (P37)	£66
KX-P1624/1695 (P38)	£124	KX-P1123 (P37)	£66

Buffers

P12	4K buffer Board for 1081	£55
P42	32K buffer Chip for 1592/1595	£16
P43	32K Buffer Chip for 1123/24/70/80/1540	£16

Serial Interfaces

P17 P1081/1592	£32	**P19** P1124/1180	£49

Citizen Printers

120D Plus	£96	124D Printer	£142
Prodot 9X	£245	Swift 24	£203
PN-48	£199	Swift 24X	£269
Swift 9	£134		

• Prodot Cut Sheet Feeder	£120
• Swift 24 Colour Option	£29
• Swift 24 Ribbons Black £4	Colour £13
• Swift 24X Cut Sheet Feeder	£125
• Prodot 24 Cut Sheet Feeder	£124

Integrex Colour Jet

• Colour Jet 132 Printer	£499
• Paper Roll	£6.50
• BBC Screen Dump Software	£10
• Colour Cartridge	£21
• Black Cartridge	£12.40
• 100 A4 OHP transparencies	£55
• 8K Serial Interface Optional	£123

Star Printers

• **LC15** 9pin 136col. 180/45 CPS	£173
• **LC20**	£110
• **LC24-10** 24pin 80col. 180/60 CPS	£143
• **LC24-15** 24pin 136col. 200/67 CPS	£292
• **LC-200** Colour 9pin 80col. 180/45 CPS	£152
• **LC-24-200** 24pin 80col. 222/67 CPS	£175
• **LC24-200** Colour 24pin 80col. 222/67 CPS	£216
• **XB24-200** Colour 24pin 136col 300/100cps	£306
• **XB24-250** Colour 24pin 136col 300/100cps	£369
• **XB-24** Colour Kit	£29
• **SJ-48** StarJet 360dpi	£179
• **ZA-200** Colour 9pin 80/136col 420/84cps	£239

Star Accessories

Cut Sheet Feeder

LC10/200/24-10	£65	LC15/LC24-15	£125
XB24-10	£80	XB24-15	£139

Serial Interfaces

SPC-10	LC10; LC10-II; LC10-Col; LC15; LC24-10; LC24-15; LC-200; LC24-200	£49
8K Ser	LC-200; LC24-200; FR10; FR15; XB24-10; XB24-15	£64

Paper Roll Holders

LC-200; LC24-200; LC24-200 colour	£29

Buffers

32K Ram Card for LC/XB24-10; 15; LC200	£55

Ribbons

LC10; LC10-II; LC15	Black **£4;**	Colour **£6**
LC-200; LC24-200	Black **£5;**	Colour **£12**
XB24-10; XB24-15	Black **£5;**	Colour **£12**

Laser Printers

All Laser Printers include 12 months On-site maintenance

• Canon LBP-4	4ppm	£569
• Canon LBP-8 III	8ppm	£975
• Canon LBP-8 IIIR	8ppm	£1479
• Canon LBP-8 IIIT	8ppm	£1365
• Epson EPL4100	6ppm	£595
• Epson EPL7500	6ppm	£1179
• HP Laserjet III	8ppm	£1019
• HP Laserjet IIID	8ppm	£1715
• HP Laserjet IIIP	4ppm	£689
• HP Laserjet IIISi	4ppm	£2425
• HP Laserjet IIIsi	16ppm	£2475
• Panasonic KX-P4420	8ppm*	£629
• Panasonic KX-P4450i*	11ppm*	£1015
• Panasonic KX-4455 Postscript	11ppm*	£1528
• Star LP-8 II (2 Bin)	8ppm	£1195
• Star LP-8 III	8ppm	£936
• Star LP-8 Star(post)script	8ppm	£1159
• Star LP-4	4ppm	£619
• Star LP-4PS Postscript	4ppm	£815

* Now with 2 years On-site warranty

Laser Toners

Canon 2, 3 & 4	£46	KX-P4420/50	£19
Epson GQ	£13	Laserjet HP IIP & IIIP	£42
EPL7100	£82	Laserjet II/D, III/D	£48
Star LP-8	£56	Qume Crystal	£58

Laser RAM Upgrades

• IIP & III 1MB	£56	• EPL7100 256K	£39
• IIP & III 2MB	£88	• GQ5000 512K	£42
• II & IID 1MB	£64	• KX4420/50 1M	£75
• II & IID 2MB	£99	• KX4420/50 2M	£115
• II & IID 4MB	£146	• KX4420/50 4M	£195
• Canon LBP4 1M	£105	• Star LP8 1M	£139
• Canon LBP8 2M	£125	• Star LP8 2M	£275

Laser Drum & Developer

• Epson Drum GQ5000	£93	EPL7100	£129
• Panasonic 4420 Drum	£60	Developer	£59
• Panasonic 4450 Drum	£93	Developer	£80
• Qume Drum	£76	Developer	£56

Jetpage Postscript Cartridge

• HP IIP/III	£239	IID & IIID	£240

Various Add-Ons

Laserjet Appletalk Interface	£139
HP Adobe Postscript	£399
Jetpage Postscript for Laserjet 2	£235
Jetpage Postscript for HP 2P/3	£229
Pacific Page Postscript	£259
HP Premier Font Collection	£28
Jetfont Superset for II & IID	£129
JF Superset International for IIP & III	£145

Hewlett-Packard Printers

• # Desk Jet 500	£285	• Paintjet XL	£1065
• Desk Jet 500 Col.	£499	• Quiet Jet Plus	£384
• Desk Jet Cartridge	£15	• HP Think Jet	£285
• Paint Jet Colour	£454	• Rugged Writer	£925

Now 3 years extended Parts & Labour warranty

• Paintjet Cartridges Black **£19;** Colour	£25
• Desk Jet 500 256K RAM cartridge	£129
• HP Epson FX Emulation Cartridge for Desk Jet	£59

HP Apple Talk Interfaces for

• Scan Jet	£299	• Paint Jet	£POA
• Desk Jet Unlimited (Book No VAT)			£19.75

Canon Bubblejet Printers

	Printer	CSF	D'ble Bin	Ink Cart
BJ10EX	£184	£43		£16
BJ300	£320	£88	£65	£12
BJ330	£374	£110	£79	£12

• Spare Battery pack for BJ10E **£33**

NEC Pinwriter Printers

• P20	£179	• P70	£405
• P30	£217	• P90	£599
• P60	£345		

Cut Sheet Feeders

P20 **£59;** P30 **£75;** P60 **£85;** P70 **£129**

Epson Printers

DFX5000	£1059	LQ870	£372
DFX8000	£1985	LQ1060 Colour	£609
FX850	£272	LQ1070	£325
FX1050	£346	LQ1170	£449
FX1060	£595	LQ2550+	£685
LQ400	£156	LX400	£105
LQ450	£175	LX850	£146
LQ550	£204	SQ850	£436
LQ570	£215	SQ2550	£635
LQ850+	£399		
LQ860 Colour	£459		

Cut Sheet Feeders for

LX400/800/850/LQ400/500/550	£69
EX800/FX800/850/LQ800/850	£130
FX/LQ 1000/1050/SQ850	£159
LQ 2550 **£390** SQ2550	£390

Tractor Feed for

LQ800 **£44;** LQ850/FX850 **£69;** LQ1050/FX1050 **£85;** LQ2500 **£90;** LQ2550 **£90.**

Accessories

• EX800/1000 Colour Option	£45
• EX800/1000 Colour Ribbon	£14
• LQ2500 Colour Option	£65
• Multifont Card for LQ550/850/1050	£95

Epson Printer Interfaces

All these interfaces fit inside the printer

RS232	£28	RS232 + 2K Buffer	£52

Printer Leads

BBC Centronics 4' long	£5
BBC Centronics 6' extra long	£7
Compact's Special Centronics Lead	£7
Nimbus Centronics Lead	£6
IBM/Archimedes Parallel Lead 6'	£4
IBM/Archimedes Parallel Lead 5 metres	£10
IBM/Archimedes Parallel Lead 10 metres	£15
Double Ended 36 way Centronics Lead 4'	£7
Double Ended 36 way Centronics Lead 6'	£9
MSX Centronics Parallel Lead 4'	£12
RS232 Leads (Various)	P.O.A.
IBM Keyboard extension lead coiled	£5

Concept Keyboards

Standard A3 Keyboard with BBC Software	£143
Standard A4 Keyboard with BBC Software	£117
Archi A3 Keyboard	£144
Archi A4 Keyboard	£118

Plotters

• HP7440A	£415	• HP7475A	£592

Roland Plotters

• DXY1100	£499	• DXY1200	£629
• DXY1300	£830	• DXY2500	£2349
• DPX3500	£3289	• Sketchmate	£315
• Roland plotter Pens, Fibre tip			£7.50

Listing Paper (Perforated)

• 1,000 Sheets 9.5" x 11" Fanfold Paper	£7
• 2,000 Sheets 9.5" x 11" Fanfold Paper	£11
• 1,000 Sheets 9.5" x 11" NCR 2 Part Fanfold	£21
• 1,000 Sheets 15" x 11" Fanfold Paper	£9
• 2,000 Sheets 15" x 11" Fanfold Paper	£16
• 1,000 Sheets true A4 Fanfold Paper 70gms	£11
• 2,000 Sheets true A4 Fanfold Paper 70gms	£21
• Teleprinter Roll (Econo paper)	£4

(All our Fanfold paper is Micro perforated leaving a smooth clean edge when the tractor feed strips are detached).

Carriage 1K Sheets £2.50, 2K Sheets £3.00

Printer Labels

(On continuous fanfold backing sheet)

1,000 90 x 36mm (Single Row)	£6.00
1,000 90 x 36mm (Twin Row)	£6.25
1,000 90 x 49mm (Twin Row)	£7.50
1,000 102 x 36mm (Twin Row)	£6.75

Laser Printer Labels on A4 Sheets

3750 70 x 29mm (3 Rows)	£13.50
3000 70 x 37mm (3 Rows)	£13.25
2625 70 x 42mm (3 Rows)	£13.00

Printer Ribbons & Various Dust Covers

Type	Ribbons	Dust Covers
BBC Micro	–	£3.50
BBC Master	–	£4.00
Archimedes Micro pair	–	£9.00
Citizen 120D	£2.75	£4.50
DMP2000	£2.75	£4.75
DMP4000	£3.75	£4.85
EX800/1000	£3.50	£5.00
RX/FX80/85/800/MX80	£2.95	–
FX/MX/RX100/1000	£3.95	–
Kaga/Taxan KP810/815	£3.25	£5.00
LQ400/500/550/800/850	£3.25	£6.00
LQ1050/LQ2500	£4.00	–
LX80/86/800/850	£2.75	£4.50
LX400	£3.50	£5.00
M1009/GLP	£2.95	£3.75
NEC P2200	£4.50	£5.00
Panasonic KX1080/81	£3.25	£4.75
Panasonic KX-P1124	£7.00	£5.00
Star LC24-10	£2.95	£6.00
Olivetti Ink Jet Cartridges (set of 4)	£6	

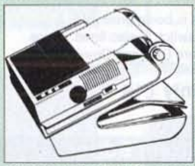
Original Panasonic Ribbons

Guaranteed to last 3 million characters

P110 for KX-P1081, 1592 & 1595	£6		
P115 for KX-P1180	£7	**P145** for KX-P1124	£7
P140 for KX-P1540	£8	**P155** for KX-P1624	£8

Colour Ribbons for KX-P1081, 1592 & 1595
Brown, Blue or Red **£9 each**

Professional Printer Stand



The professional printer stand takes hardly more space than your printer. Due to the positioning of the paper feed and re-fold compartments ie. one above the other, the desk space required for your printer functions is effectively halved. Its ergonomic design ensures smooth paper flow and automatic refolding.

80 Column version £24 (carr. £3)
132 Column version £29(carr. £4)

Universal Printer Sharers/Changer

Connect up to 5 Micros to 1 printer or 5 printers to 1 Micro with our combined, Sharer/Changer switch boxes.

Standard Low Cost Type

Connects	Serial	Parallel
• 2 to 1	£10	£11
• 3 to 1	£13	£14
• 5 to 1	£16	£17

Professional Type

Connects	Serial	Parallel
• 2 to 1	£17	£18
• 3 to 1	£22	£25
• 5 to 1	£34	£38

2 Way Compact Printer Switch

A handy 2 way printer switch. Enables one micro to be connected to 2 printers or vice versa.
Centronics **£18;** Serial **£17**
(Cables extra at £6 each)

Auto Printer Sharer Switch

Connects	Serial	Parallel
2 to 1	£40	£45
4 to 1	£62	£59
8 to 1	–	£89

256k Multi Spooler

These Auto Parallel Printer Sharers have built-in 256K of Printer Buffers. They can be used as Auto Sharers, Printer Buffers or both.

• 2 In/2 out	£135	• 4 In/2 out	£169
• 8 In/1 out	£199		

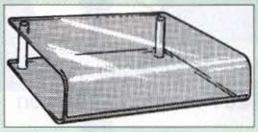
Compact Converter Units

Serial to Parallel	£36	Parallel to Serial	£37

Laser Direct

• Laser Direct Qume 6ppm complete	£825
• Special High Res Card 600 DPI for Canon LPB 4 & LPB 8 Laser Printers	£325
• LPB 4 Printer plus High Res Card	£899
• LPB 8III Printer plus High Res Card	£1299

Perspex Printer Stand



Give your Computer System a touch of Class with our elegant, smoke finished Perspex Printer stand.

80 Column version	**£16** (carr £3)
136 Column version	**£20** (carr £4)

Continued→ → → → → → → → →

QUEST MOUSE Mk III

• Quest Mouse III & Quest Paint	£59
• Quest Mouse III, Quest Paint, AMX Stop Press & Pagefont	£89
• Quest Mouse III only	£30
• Quest Paint Software only	£34
• Quest Font Disc (22 Text Fonts)	£15
• Quest Mouse Mat (Red or Blue or Green please specify)	£3
• Quest Colour Dump Disc – This new software allows you to print direct from Quest Paint to your Integrex Colour Printer	£18

(P.S. Quest Paint is not compatible with BBC Compact)

Quest Paint is the winner of the BBC Acorn User 1990 Award for the Best Art/Graphics software

ConQuest

Quest combined with ConQuest and Acornsoft GXR ROM make up THE MOST POWERFUL drawing packages available for the BBC range. Quest Paint is able to take advantage of almost any additions to your machine, such as Shadow or Sideways RAM. ConQuest takes this principal even further, by utilising the otherwise normally incompatible Sideways RAM facility by holding pictures in them.

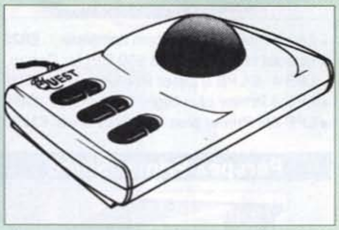
ConQuest ROM Package £30
(Price includes software in ROM and a comprehensive Manual).
(Not Compatible with BBC Compact)

ARCHI Mk II MOUSE

An extremely reliable replacement mouse for Archimedes Micro £32

Quest – Tracer ball

An attractively finished, extremely reliable, mouse replacement, input device. Requires very little desk space. Connects directly to your BBC B, BBC Master or Archimedes Micro.



QT-10 BBC/Master Version	**£27**
QT-20 Archimedes Version	**£30**

RB2 Marconi TRACKER BALL

RB2 (AMX/Quest compatible)	£45
RB2 including Quest Paint	£75
RB2-A for Archimedes	£46

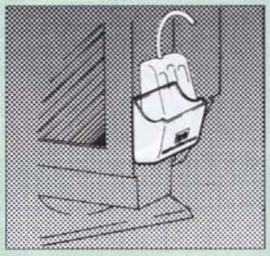
THE NEW Mk III AMX MOUSE

• AMX Mouse plus Super Art £54

(Please specify for BBC, Master or Compact)

• AMX MOUSE ONLY	£29
• AMX SUPERART Package	£29
• AMX STOP PRESS – A Desktop publishing software. Works with Keyboard, Joystick or a mouse	£25
• PAGE-FONTS – Over 20 Fonts for use with AMX Pagemaker	£13
• AMX DESIGN (ROM)	£34
• AMX XAM Educational	£15
• AMX EXTRA EXTRA	£16
• AMX MAX A gem of desktop (ROM)	£20
• MOUSE MAT	£3

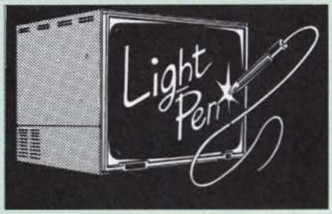
WE Mouse House



Treat your mouse to a cosy Mouse House. This handy little gadget solves the problem of where to store your mouse when it is having a rest. Made of sturdy plastic, the WE Mouse House attaches to the side of your computer, monitor, disc drive or desk.

It protects it from damage when not in use, yet within easy reach when you need it again. At £4 it does not cost a rodent's ransom.

Price £3



Our Mark II Light Pen is the very latest in light pen technology. It is totally insensitive to local lighting conditions and works with many different monitors. The pen only responds to the High Frequency light produced by your monitor/TV. An LED indicates when valid video data is being produced. A conveniently located switch is also fitted. (Price includes FREE software Disc and Operating Manual)

Only £19

Fleet Street Editor

Software pack for BBC Micro	£29
Software pack for the Master	£35
Fonts N Graphics Disc Utility	£13

BEEB VIDEO DIGITISER

"Test Bureau Approved for Use in Education"

Using any source of composite video (colour or monochrome) and the Watford Beeb Video Digitiser, you can convert an image from your camera into a graphics screen on the BBC Micro. This uses the full graphics capacity of the BBC micro in modes 0, 1 or 2. The video source may be a camera, video recorder or television, and is connected via the video output socket. The software supplied includes a sophisticated, fast screen dump routine.

Images produced can be compressed, stored to disc, printed on an Epson compatible printer, directly used to generate graphics, analysed for scientific and educational use or converted to other formats e.g. Slow Scan TV or receiving a picture from a remote camera using a modem. The output from the digitiser exactly matches the graphics capability in each mode, with up to 8 levels of grey in mode 2. The unit connects into the User Port and automatically scans a complete picture in 1.6 seconds.

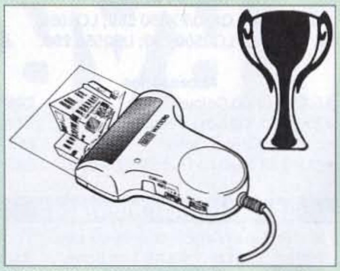
£109 (Carr. £5)

(BBC B+ and Master compatible, except Master with Econet)

(Price includes) Digitiser Unit, Software in ROM & a Comprehensive Manual)

The Beeb HandScan

Hand-held Scanner for the BBC Micro



Watford Electronics are pleased to announce the launch of the first hand held scanner for the BBC Micro. HandScan is a compact unit which will allow photographs, diagrams, or any other documents to be digitised quickly and easily, to then be used in a desk top publishing package, art program, or even in your own Basic programs! These useful devices have been available for faster and more expensive micros for some time, but only now is Watford Electronics able to offer the BBC Micro computer.

The HandScan plugs directly into the 1MHz bus on the BBC while a comprehensive set of utilities provided by the sophisticated ROM firmware. The scanner has a resolution of either 100 DPI or 200 DPI when accuracy is essential. Pictures as wide as 4" may be scanned in mode 0 and various types of dithering may be selected to simulate the grey levels of a scanned picture.

All necessary software has been included in the firmware to allow the scanner to read images directly into our Wapping Editor with little more than the click of the mouse. The digitised picture may then be incorporated into your magazine, newsletter, report or any other document.

Beeb HandScan & Firmware £135

WAPPING EDITOR
"MIGHTIER THAN THE QUILL"

Winner of the BBC Acorn User 1990 Award for the Best DTP/Word Processor

The Wapping Editor

The Wapping Editor from Watford Electronics represents a breakthrough in Desktop Publishing for the Beeb. The package includes a 64K ROM containing ALL the software needed to get into print fast; a very sophisticated graphics module, professional quality typesetting software, a word processor, a comprehensive font editor for designing your own typefaces, and a variety of printer dumps. This mouse-driven system is designed for the BBC B, the B+ and Master computers and will take full advantage of any Sideways and Shadow RAM that may be fitted. It will run under DFS, ADFS and Network filing systems and requires as a minimum just a single 40 track drive.

Included with the system is a utility disc containing several high quality fonts, various utilities and a ROM image of a Support ROM. A comprehensive 100 page manual completes the package. The Support ROM contains routines to allow an area to be rotated to any angle or distorted to any four-sided shape. Also included are facilities to draw ellipses at any angle and sectors, segments and arcs (in Master or BBC B with Acorn GXR). Another of the features of the Support ROM is a 'Turbo DFS' which gives DFS access times comparable with those of ADFS.

Page Layout Section

The Wapping Editor may be used to create pages of any size from an A6 to a full A3 page. If none of the eight default page types suit your purpose, the stand-alone page creation program may be used to create pages to your own requirements. By using proportionally spaced fonts and genuine microspacing it is possible to print over 150 characters across an A4 page. A unique feature of the Wapping Editor is the 'A5 x 2' page size allowing two A5 pages to be printed side by side onto a single A4 sheet.

The graphics module incorporates the facilities like: pencil, brush, airbrush, polygon, circle, eclipse, fill, cut & paste, etc.

Text may be typeset, either justified or unjustified, in any font anywhere on the page. Simply select which font and text document you wish to use, and pull out a rectangle on the page where you want the text to be – it's as simple as that! Multiple columns may be printed just as easily and a special 'expand' feature may be used to expand the microspacing so that the document exactly fits the space defined.

Word-Processor

The integral word processor is the ideal tool for producing your text documents, although text can of course be read in from any of the other popular word processors such as View, Wordwise etc.

The Font Editor

The font editor module will allow you to design your own typefaces or to modify the ones provided on the utility disc. This sophisticated editor has numerous functions designed to take the tedium and frustration out of producing good looking, well balanced fonts. Each character may be individully proportionally spaced and characters of any size up to 16 x 16 pixels may be defined.
Pictures may also be 'grabbed' from a video source by using the Watford BEEB Video Digitiser.

Wapping Editor Software Pack	**£59**
Wapping Editor plus Mouse	**£79**

(Wapping Editor only works with Master Compact if a Mertec Expansion box is fitted)

Wapping Art Disc

Over 250K of clip art to cut and paste into your Wapping Editor pages. Pictures include maps, transport, people, media, sport, games etc.
Two 'ratio' screens for use with hi-res and rotated A5 pages to ensure images are not distorted when printed out.

Music writing symbols in the form of pattern and brush for quick production of manuscripts are included together with staves.

There are two prepared hi-res pages layed out for printing labels, both single and double width. Ready made label designs are included but these can be easily replaced with your own designs.

A Mode 0 screen dump routine is also included. To pack such a large amount of data onto the discs the screens have been compressed and routines to compress and expand Mode 0 screens are included on both discs. Using the packing routine you can archive large numbers of screens onto a single disc.

£15

Wapping Font Disc 1

Sixteen additional fonts, including smaller version of Oberon and Daisy and two new sizes of the standard font for the Wapping editor.
Also included are three Mode 0 screens containing giant 'headline' fonts to cut and paste to create extra smooth headlines.
Supplied complete with instructions. **£12**

Wapping Font Disc 2

This new addition to our Wapping range of DTP software provides you with additional 23 fonts for the Wapping Editor DTP pack. (80 track discs only). **£13**

Archi A4 Scanner

This most advanced Archi A4 image scanner is supplied complete with ROM based podule software. Features provided include facilities for zooming in on an image and inverting the image in X and Y directions, saving and printing of the sprite created. Interactive help is supplied using the !HELP application on the Acorn applications discs.
The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, diagrams, etc., with its fast ten page automatic document feeder, but it can also detach from the feeder to become a convenient hand-held full page scanner for larger documents or pictures.
Scanned image control can be freely adjusted in increments of 10 dots per inch from 100 up to 400 dpi resolution with 64 levels of grey scaling. A built in shading controller and manual brightness control achieve optimum image clarity.
Unlike some scanners, which use a red light source, the Watford scanner uses a yellow/green source which vastly improves the light/dark contrast, thus eliminating the effect where any red-based colours are faded down to white and so do not show up in the scanned image.
All these features and facilities combine to make the Archi Page Scanner the fast and convenient way in which to add that extra impact, interest and clarity to documents, reports, instruction sheets, manuals, news letters, etc., from your Archimedes DTP package.

New Low Prices:

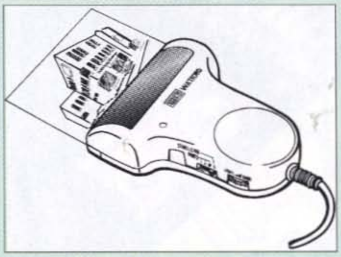
Archi A4 Scanner	£349
Sheet Feeder for above	£95
Scanner + Sheet Feeder	£419

(Dealers Inquiry welcome)

Computer Concept Scanlight

• Scan-Light A4	£375
• Scan-Light A4 + Sheet Feeder	£475
• Scan-Light Junior mono	£178
• Scan-Light Junior 256	£215

Archi Mk II Hand Scanner



Watford Electronics is now able to offer a complete hand held scanning package, possibly the most essential addition to any desk top publishing system, for only £149. The package includes the most comprehensive utility software available for the Archimedes, a high quality hand held scanner, and all necessary documentation to get you going straight away.

SCANNER

The scanner is capable of scanning up to an amazing 400 dots per inch (DPI)! The scanning area is 4" wide, and the height is only limited by the maximum amount of memory available. The dot resolution may be switched to 100, 200, 300 or the maximum 400 dpi. One of four operating modes may be selected offering either pure monochrome scanning, or one of three grey level modes. The grey level modes use different size dither patterns to represent up to 16 shades of grey. There is also a dial to allow the "brightness" to be adjusted over a wide range, in order to optimise the quality for any specific image. The scanner interface is a standard, single width, expansion card (podule) which plugs into the Archimedes' backplane. The socket on the rear panel connects the scanner by 1.8 metres of cable.

SCANNER SOFTWARE

Full use is made of the windowing and the multi-tasking facilities of RiscOS. The software is supplied in a 64Kbyte ROM located on the interface board. The scanner appears as a small icon on the desktop icon bar, and the software is retrieved from the ROM simply by clicking on that icon. As you scan a page, the image appears in the scanning window on the screen, scrolling up in real time. The other facilities included in the software are.

Cropping and scaling to any size including stretching and squashing in X and Y direction separately.

Colour tinting.
X and Y flip.

Edge detection which turns solid objects into outlines.

Selective directional copying which allows features (i.e. lines or text) to be made thicker or thinner.

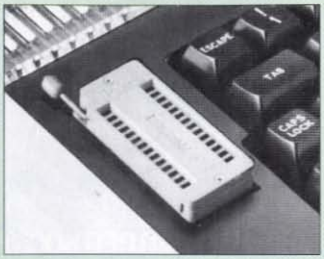
Scanned images may be saved as sprite files or transferred directly into other RiscOS applications (DTP, Draw, Paint) simply by dragging the sprite file into the application's window. Sprites may also be generated using anti-aliasing. This greatly improves picture quality and is particularly effective when scanning material with a range of grey tones, such as photographs. Images can be printed on any printer that is supported by a RiscOS printer driver, with optional settings for portrait or landscape modes, image scale and positioning. Images are printed using the full resolution of the printer and are not limited to the screen resolution.

On-screen help is provided via the RiscOS interactive help facility. Calls are also provided in the ROM for users wishing to write their own software, incorporating the use of the scanner.

AHS-4 Archi 300/400 Version	**£149**
AHS-3 Archi A3000 Version	**£169**

Continued→ → → → → → → → →

Sideways ROM ZIF Socket System



Allows you to change your ROMs quickly and efficiently, without opening the lid. The ZERO INSERTION FORCE (ZIF) socket is located into the ROM Cartridge's position.

- Very simple to install. NO SOLDERING required. The ZIF (Zero Insertion Force) eliminates the possibility of damage to your ROM pins when inserting & extracting.
- The low profile of the socket allows unrestricted access to the Keyboard.
- All data and address lines are correctly terminated to ensure correct operation of suitable ROMs with the BBC micro. We also supply a purpose designed see-through storage container with anti-static lining, allowing you to store up to 12 ROMs, protecting them from mechanical and static damage.
- This versatile hardware solves the problem of running out of socket space. Simply lift the ROM from the ZIF & insert a different one (No pulling or pushing of Cartridges. It is a must for professionals and Hobbyists alike.)
- BBC, B and B+ compatible.

ONLY **£18**

BBC B Low Profile Cartridge System

Complete System consists of: Low profile ROM Cartridge, Socket housing, Cable assembly, 5 labels and a library storage rack for the BBC B.

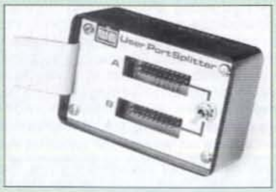
• Complete System	£11
• Spare Cartridges	£2.75
• Spare Rack	£1.65

ROM Cartridges for the BBC Master

Will also accept the new larger Piggy Back ROMs like: Interword, Interbase, Quest, Conquest, etc

Twin **£8;** Quad **£13**

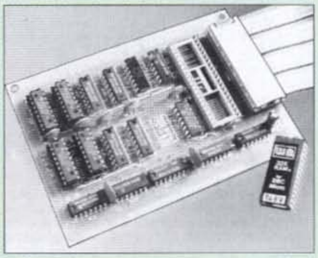
User Port Splitter Unit



Gone are the days when you had to plug and unplug devices from the User Port. This extremely useful little device allows two units to be connected to the User Port simultaneously, and select between them simply by toggling a switch. This device is particularly useful for those people using Quest Mouse and the Watford Video Digitiser or any similar combination

Excellent Value at **£22**

32K Shadow RAM/Printer Buffer Card Expansion Board



A MUST FOR WORD PROCESSING

Simply plug the ribbon cable plug into the 6502 socket and gain a massive 32K of extra RAM.

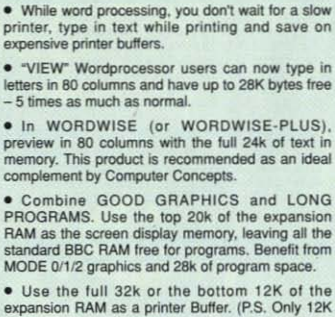
- While word processing, you don't wait for a slow printer, type in text while printing and save on expensive printer buffers.
- "VIEW" Wordprocessor users can now type in letters in 80 columns and have up to 28K bytes free – 5 times as much as normal.
- In WORDWISE (or WORDWISE-PLUS), preview in 80 columns with the full 24k of text in memory. This product is recommended as an ideal complement by Computer Concepts.
- Combine GOOD GRAPHICS and LONG PROGRAMS. Use the top 20k of the expansion RAM as the screen display memory, leaving all the standard BBC RAM free for programs. Benefit from MODE 0/1/2 graphics and 28k of program space.
- Use the full 32k or the bottom 12K of the expansion RAM as a printer Buffer. (P.S. Only 12K printer buffer can be used with Wordwise & WW+, due to the way they are written).
- Unique facility to turn ROMs off and on again.

Only £54

(Price includes a comprehensive manual and the ROM)

NEW

Commander Joystick



Watford Electronics' new Commander Joystick for the BBC B and Master 128K has a unique dual mode of operation giving selective free floating or self centring fully variable control in both X and Y axis directions. Commander is particularly good for flight simulation and drawing programs.

Features:

- Direct connection to BBC Analogue input port – no interface needed.
- Fully compatible with all BBC Joystick controlled games programmes.
- Switchable springs allow selection of floating or centring operation.
- Trim adjusters for both X and Y axes for fine centre adjustment.
- Convenient stick mounted fire button with additional base buttons.

Price: £15

ARIES CORNER

B-32 Shadow RAM Card

Like the BBC B+, the B32 provides 20k of shadow screen RAM and 12k of sideways RAM. Unlike the B+, the B32 has simple software commands which allow the user to reconfigure the RAM as 16k of shadow RAM and 16k of sideways RAM, or all 32k as sideways RAM.

With the B32, the programmer gets up to 28k of RAM available for Basic, Logo, Cobal, Forth, Lisp and BCPL programs in any screen mode. The business user gets extra memory for View, ViewSheet, Wordwise Plus, Interword and many other applications. For advanced applications, the scientific user gets access to a massive 47k of data storage using the Acorn approved ★FX call.

Sideways RAM enables you to load sideways ROM images from disc, allowing you to have a large library of sideways ROMs (subject to the copyright holder's permission) stored on disc. The B32's sideways RAM can also be used to extend any operating system buffer (such as the printer buffer) or to load tape programs into a disc system.

The B32 simply plugs into the 6502 processor socket on you BBC micro – no flying leads to connect and no soldering. Provision of the onboard ROM socket means that the Aries-B32 control ROM does not use up one of your existing ROM sockets.

- Recommended by Computer Concepts for use with their Inter series of ROMs.

Price: **£59**

Aries B-12 Sideways ROM Board

The B-12 provides a total of twelve sideways ROM sockets (the four in the original machine are replaced by the twelve on the board), all fully accessible by the MOS sideways ROM system. In addition, there are two sockets for sideways RAM, giving up to 16k of RAM using 6264 static RAM chips.

If you do not have a B32 or B20, a small adaptor module (the Aries-B12C) is available at a nominal cost

Price:	Aries B-12	**£36**
	Aries B-12C	**£5**

Aries B-488 IEEE-488 Interface Unit

The Aries-B488 is an interface unit to enable the BBC micro to control and monitor IEEE-488 bus systems. The IEEE-488 bus (also known as the 'GPIB or 'HP IB') is the standard method of interconnecting programmable laboratory instruments and control equipment. Using the B488, up to 15 devices may be connected in a single high-speed data network.

£238

Voltmace Joysticks

Delta 3B Single Joystick	£10
Delta 3B Twin Joysticks	£15
Delta 3C Joystick for Compact	£10
Delta 14B Single Joystick	£11
Delta 14B/1 Adaptor Module	£12
Transfer Software Disc-Tape	£7
Delta-Cat A mouse eliminator Joystick for the Archimedes	£24

Delta Base B

Analogue aircraft style yoke Joystick to run in the analogue port of the BBC B & Master 128 £25

ROM/RAM Card

Watford Electronics announced the first ever commercial ROM board for the BBC micro, the Watford Electronics 13 ROM Socket Board 9 years ago. Following the success of this board, we have designed what probably represents the ultimate in expansion boards, Watford's ROM/RAM card.

- NO SOLDERING required to fit the board.
- NO User Port corruption (avoids problems with the mouse, modems, Eprom Programmers, etc.)
- Fully buffered for peace of mind.
- Compatible with BBC micros (not BBC+ or Master).
- Total number of ROMs increased from 4 to 8.
- Up to 8 banks of sideways RAM (dynamic).
- Option for 16k of battery backed CMOS RAM (CMOS RAM needs one ROM socket).
- Software Write protect for ALL RAM.
- Read protect for CMOS RAM (ALLEVIATES crashes during ROM development).
- Separate RAM write register (&FF30 to &FF3F).
- Automatic write to currently selected RAM socket for convenience.
- FREE utilities disc packed with software.
- Compatible with our DDFS board, 32k RAM Card, Delta Card, sideways ZIF, etc.
- Large printer buffer.
- UNIQUE fully implemented RAM FILING SYSTEM (similar to the popular Watford DFS).
- ROM to RAM load and save facilities.

The SFS (Silicon Filing System) can utilise up to the full 128k of RAM (with the SFS in any paged RAM) as a SILICON DISC. This behaves as a disc drive, with all the normal Watford DFS features (including OSWORD &7F for ROMSPELL, etc.) to provide an environment that looks like a disc but loads and saves MUCH faster.

The ROM-RAM Board plugs into the 6502 CPU socket. This leaves free all the existing ROM sockets, which can still be used normally.

Any ROM that can be plugged into the BBC micro's own ROM sockets may be used in the ROM-RAM Board.

The ROM-RAM Board is supplied with all ordered options fitted as standard. Upgrade kits (with full instructions) are available for all of the options, for later.

PRICES:

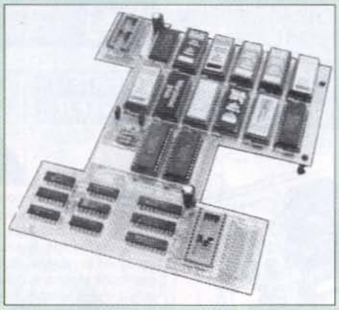
• ROM/RAM card with 32k DRAM	£45
• ROM/RAM card with 64k DRAM	£59
• ROM/RAM card with a massive 128k DRAM	£99

OPTIONAL EXTRAS:

• 16k plug-in Static RAM kit	£8
• 16k DRAM for Upgrade	£13
• Battery backup	£3
• Read and Write protect switches	£2 each
Complete ROM-RAM card with all options fitted	£109

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

Solderless Sideways ROM Socket Board



The key features of this no fuss, easy to install card are:

- Increases your BBC Micro's ROM capacity from 4 to 16.
- **No soldering required.**
- Very low power consumption.
- Compatible with Torch, DDFS, RAM Card, 2nd Processor, etc.
- Socket 14 takes two 6264 RAM chips.
- Read protect to make RAM "Vanish") allows recovery from ROM crashes.
- Battery backup option for RAM chips.
- Supplied ready to fit with comprehensive instructions.

Price: Only £35
Battery Backup fitted **£39**
Battery Backup only **£3**
16K Sideways RAM **£8**

- Sideways RAM Utilities Disc for Solderless ROM Board. Includes the options to load and save ROM Images and the facility to use Sideways RAM as Printer Buffer. **Only: £8**

BBC Educational Software

• Maths with a Story 1 (Disc). 4 primary level maths programs	£20.00
• Maths with a Story 2 (Disc). 4 further maths programs.	£20.00
• Picture Craft (Disc) 6-14 age group. Pack consists of flexible geometrical design & colouring programs.	£17.00
• ECOLOGY O-Level program.	£20.00
• POLYMERS O-Level program.	£20.00
• Classification & Periodic Table O-Level. The suite is supplied with its own database of chemical elements which can be classified according to your own rule.	£20.00
• ADVANCED TELETEXT SYSTEM	£8.65
• PERIOD TABLE SOFTWARE	£20.00
• Computers at Work – Primary	£17.35
• Introducing Geography 11-17 years	£17.50
• Electric Fields 6-14 years	£11.25
• Espana Viva – 3 Discs	£19.95
• WHITE KNIGHT Chess game	£16.00
• A Vous La France	£29.00
• **FUN SCHOOL 2 – Red:** Under 6 yrs	£12.00
• **FUN SCHOOL 2 – Green:** 6-8 yrs	£12.25
• **FUN SCHOOL 2 – Blue:** 8 yrs+ .	£12.50
• **FUN SCHOOL 3 – Red**	£18.50
• **FUN SCHOOL 3 – Green**	£18.50
• **FUN SCHOOL 3 – Blue**	£18.50
• Six French Games – Aimed at pupils in their first year of French, but also useful as revision for more advanced students 11 years+	£26
• More French Games – Another 6 games 12 years+	£26
• Au Restaurant and Accident de Route 12 years+	£26
• Boulogne and Oh-Les – 2 programs for beginners	£26
• Letters to French Penpals – 11 years+	£26
• French Programs with Henri Beret – The programs in this series present vocabulary, grammar and role-play phrases in the form of animated games. 11-16	£22
• Six German Games – Aimed at pupils in their first year, but useful as revision for more advanced student of German. 12 years+	£22
• More German Games – Aimed at pupils in their 2nd year of learning German. 12 years+	£22
• The Cloze Program – Using context clues to predict is much more than a gap filling exercise. All ages	£26
• An Introduction to Electronics – Brings together all the basic electronics required for a GCSE Physics or CDT course. 14-16 years	£26
• Computer Control – This is a package of 3 programs simulating control of a greenhouse, a robotic arm & a chemical plant. 14-16 years	£26
• The Nuclear Reactor – An interactive, menu driven program for GCSE pupils. Demonstrates & explains nuclear fission & the chain reaction. 14-16 years	£22
• PUNCMAN Learning punctuation	
Puncman 1 & 2 for 7 – 13 years	£15
Puncman 3 & 4 for 8 – 14 years	£15
Puncman 5 & 6 for 8 – 15 years	£15
• Yes Chancellor – A chance to take over number 11 at Downing Street. 12 years+	£18
• Letters & Pictures – Introduces phonic skills to Infants 6-8 years	£15
• Numbers & Pictures – Early number learning is a great fun (4-6 years)	£15
• Note Invaders – Budding musicians can learn the notes on the Clef with this elegant game 3 programs (7 to Adults)	£15
• Maps & landscapes No. 1 (9-14 years)	£18
• Help Your Child learn Basic Map work No. 2 (9-14 years)	£18
• Pirate – Educational Adventure (8-14 years)	£15
• Spelling Week by Week (6-14 years)	£18

Archimedes Software

• Animated Alphabet (3-6 yrs)	£21
• Arcventure (8-12 yrs)	£29
• Bookbinder	£43
• Bumper Disc	£14
• Bumper Disc 2	£14
• Craftshop 1	£26
• Craftshop 2	£26
• Christmas Allsorts – Clip Art (6-16 yrs)	£16
• Converta-Key	£16
• Data Word	£16
• Desktop Stories	£35
• DigiSim	£35
• Dream Time (5-7 yrs)	£23
• Droom	£19
• Farm (5-7 yrs)	£19
• Fleet Street Phantom (9-13 yrs)	£25
• Fun School 2A Red (up to 6 years)	£12
• Fun School 2A Green (6-8 years)	£14
• Fun School 2A Blue (8 years +)	£14
• Gate Array Teaching System	£68
• Glimpse Clip Art Utility (7-16 yrs)	£8
• Highlighter (6-16 yrs)	£42
• Jiglet	£27
• Jigsaw	£28
• Mapventure (9-13 yrs)	£24
• Microbugs	£24
• Money Matters	£16
• Nature Park Adventure (7-9 yrs)	£27
• Numerator	£60
• Picture Book	£16
• Recall (6-13 yrs)	£39
• Sellardore Tales	£24
• Snippet	£26
• Space Mission Mada (9-13 yrs)	–
• Sting of the Dump (9-13 yrs)	£22
• Target Maths	£16
• Viewpoints (9-12 yrs)	£33
• Wizard's Revenge (7-10 yrs)	£17
• Worst Witch (7-10 yrs)	£25

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Computer Concept's ROMS

Communicator	£49
Disc Doctor	£18
Inter BASE	£49
Inter CHART	£25
Inter SHEET	£37
Inter WORD	£36
Mega-3 ROM	£76
Spell Master	£42
Wordwise	£24

Wordwise plus

£40

We are giving away absolutely **FREE,** the superb Word-Aid ROM worth £24, with every WORDWISE PLUS package bought from us.

Word-Aid

The most comprehensive utilities ROM for Wordwise-Plus

Extend the power of your Wordwise Plus word processor with this most advanced ROM from Watford. By utilising the powerful Wordwise Plus programming language, WordAid provides a whole host of extra features, all accessed via a special new menu option. This ROM has been personally approved by Mr Charles Moir, the author of WORDWISE PLUS.

- Alphabetical sorting of names and addresses.
- Text transfer options.
- Chapter marker.
- Epson printer codes function key option.
- Search and display in preview mode.
- Embedded command removal.
- Print Multiple copies of a document.
- Multiple file options for print and preview.
- Address finder.
- Label printer.
- Mail-merger.
- Number/delete/renumber.
- Clear test-segment area.
- BBC B, B+ and Master compatible.

Only **£24**

(N.B. Word Aid requires a Disc interface in your Micro)

Acorn ROMS

View 3.0 ROM	£45
Viewsheet (Acornsoft)	£36
Viewstore	£36
Viewspell with 80 track disc	£25
Viewplot Disc	£20
(Please specify for Master 128 or Compact)	
View-Index	£12
Overview packs 1 & 2	£65
Hi-View	£38

MINI OFFICE II

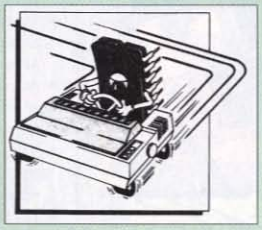
DISC Version for BBC B & B+	£14.00
DISC Version for BBC Master	£16.00
DISC Version for the Compact	£18.00

(When ordering please specify for which Micro & 40 or 80 track Disc)

View Printer Driver Discs

Epson FX & RX 80	£10
Juki & Brother HR	£10

View Printer Driver ROM



View is a powerful word processor, but it seriously lacks in terms of printer driver support. With the View Printer Driver ROM, the View users will find themselves in the realms of advanced word processing.

The VPD extends View's printer command with a series of mnemonic commands. All standard highlight sequences are also supported. A large range of printers are supported by drivers contained within the ROM (the drivers can be downloaded and customised). Printers supported include: Epson's MX, RX, FX, LX, JX80 range, HI80, KP810/910, PW1080, JP101, HR15, M1009, GLP, Panasonic KX-P1081/2, JUKI 6100, etc.

Other printers are readily supported by defining a Printer Driver using the built-in Printer Driver Generator. The features mentioned below are available to both the built in Printer Drivers and user defined drivers (assuming the printer supports the features).

NLQ control, Underline, Bold, Proportional Spacing, Microspacing, Italic, Superscript, Subscript, Condensed, Enlarged, Double Strike, Set lines per inch numerically (e.g. LPI 6), Set characters per inch numerically (e.g. CPI 5), Select printer font, Select printer ribbon colour, Translation sequences, Emulation of BBC Character Set, Simple numeric expressions for certain operations, Full printer setup, Send control codes, Print prompt on screen, Redifinable Pad character, Pause for key press, Prompt to change daisywheel, and Execute ★ command when printing.

Other features include a very powerful on-screen preview, with bold, italic, underline, super/subscript, enlarged highlights, and a special printer driver to allow memory-based text to be previewed by View 1.4. Of course, View 1.4, 2.1 and 3.0 are all supported, as is Shadow RAM and 6502 Second Processors. The BBC B series and Master series of micros are supported. A comprehensive manual is supplied. All in all, a very professional product for the discerning user who wants power at their finger tips.

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DATABASE – Set up a computerised card index system with powerful search facilities.

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Acorn Speech Synthesizer package complete, for the BBC B Microcomputer

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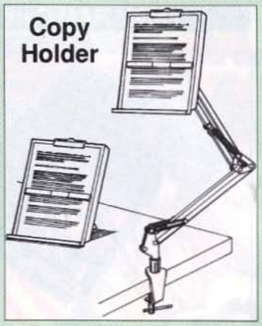

Whether you want to type in your latest program or the draft of a new trilogy, Watford's manuscript holders are superb for holding your paper at the ideal height and angle to allow you to read and type in ease and comfort.

Available in 2 full A4 versions, desk resting and shelf clamping. Paper is held firmly by means of a plastic retaining ruler and a clip grip. (for resting books or magazines, the desk top version is recommended).

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The Epson RX/FX/KAGA Printer Commands Revealed Handbook

So you bought yourself a new printer, because the salesman in the shop showed you how clever it is and impressed you with all sorts of printouts to show its capabilities – he may even have offered you a special price.

However, now that you have got it home and connected it to your BBC microcomputer, you are wondering how to make it perform these magical tasks. The manual seems to give no clues, and when you type in the example programs, the computer throws the LPRINT statements back in your face.

Now what do you do, when this £400 piece of high technology refuses even to move its head, and you have stayed up until 2 in the morning with copious supplies of coffee, desperately trying to print something out? Once again, Watford Electronics comes to your help with our new book entitled 'THE EPSON FX-KAGA PRINTER COMMANDS REVEALED'.

This book describes in plain, easy to understand English, how to use and make the most of your KP810, PW1080A or any other Epson FX80 compatible printers like Panasonic KX-P1080/1, etc., with the BBC Micro, both from Basic and Wordwise.

It describes in detail how to obtain the maximum in graphics capability from your printer and includes full indexes allowing you to cross index the numerous commands. Every command is explained in detail, with an accompanying BBC Basic program and an example of its use from Wordwise.

£5.95 (No VAT)

ALL PRICES EXCLUDE VAT

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Carriage on Books vary between £2 to £3.50, depending on their weight

New Release

ACORN TO PC

Stop the Confusion!

Do you have to use both Acorn computers and PC's? Would you like to use your Archimedes or A3000 in PC-emulation mode but are unsure of the new commands?

Although Acorn machines (such as the BBC B, the Master, the Archimedes and the BBC A3000) are mainly used in education, most commercial computers use other operating systems, particularly MS-DOS. As a result school computer users are at a disadvantage when moving into 'business' computing. PCs and other commercial computers use MS-DOS as the operating system, so commands for formatting, copying, backing up, printing and the modem are not the same. Even file names are written differently! And did you know that there is one Acorn command which, if used in MS-DOS, wipes everything in the current directory?

'ACORN TO PC' enables you to change over painlessly. It shows clearly and quicly how, why and where the two systems (Acorn and MS-DOS) differ. As with a foreign language dictionary, you can use the book to transfer either way – from Acorn to MS-DOS, or from MS-DOS to Acorn.

'ACORN TO PC' also acts as a handy reference guide to all Acorn star commands and their MS-DOS equivalents. It also has an extensive and readable explanation of the directory tree and hierarchical filing systems in general. Both DFS and ADFS Acorn systems are covered.

'ACORN TO PC' is written clearly and concisely by Dr. John Lockley, who has wide experience of writing and broadcasting. He is currently appearing as a regular contributor on Radio 5, and is co-author of 'The Complete BBC Computer User Handbook'.

Price: £12.95 (No VAT)

The Complete BBC Computer User Handbook

If you own a BBC B, B+, Electron, Master 128 or Master Compact, or Archimedes, then this is the book for you. It shows how to get the best from your machine, and how to make it work for you. The general style and level of presentation means that both the expert and beginner alike will feel comfortable with the quality and quantity of the material.

Subjects covered include the general use of computers, hardware design and peripheral devices like printers, disc drives, etc, and Networking. Programming hints and tips and various disciplines for making a better program are discussed in some detail, including debugging of specific errors. Standard programs are covered, such as wordprocessors, spreadsheets, databases, graphics, communications, etc., which brings you neatly on to the subject of using computers in the office or at work – even giving advice on writing and marketing your own programs.

A book you will enjoy to use as a reference, or read from cover to cover, over and over.

Only: **£14.95** (No VAT)

The Complete Mouse User Guide to BBC Micro

This manual has been written to reveal the secrets of the mouse. It explains all the principles required by the hardware and associated software, and also example listings for inclusion into custom programs. The manual first details the basic principles of the mouse and a simple program which uses these principles. This information should be adequate for most applications. However, it is possible to improve the performance of the mouse by expanding on the principles already used in the software. This is again fully explained and an example program given.

It is possible to gain a full understanding of the mouse from this manual. For those not interested in exactly how the mouse functions, complete example programs are also included. These may be typed directly into the micro, without the need for any understanding of the hardware or software involved, enabling the mouse to be used for custom applications.

Price £5.95 (No VAT)

Example programs on Disc £4.95

Beeb PC (BASIC)

Beeb PC Basic is designed for program authors wishing to convert programs so that they will run on IBM personal computers. To convert BBC BASIC programs manually can waste days of valuable time with every occurrence of common statements such as PROC, DEFPROC, TAB, having to be changed.

Beeb PC (BASIC) automates many of these changes, and will convert majority of BBC statements that are invalid for IBM BASIC into equivalent acceptable statements. In addition BBC BASIC data files can be converted to IBM BASIC format, with support provided for all BBC data formats:- INTEGER, REAL & STRING.

Price: £38

Beeb DOS 3.0

(Now reads Archimedes Discs)

The BBC and IBM PC's are the most popular micros in the UK. The BBC is firmly established in the education sector and the IBM is the industry standard in the business world. The pools of information and applications held on these computers are immense, yet the means of passing information between them are very limited. Beeb DOS provides a practical method of transferring information between these two micros.

Beeb DOS is a collection of utilities which run on the PC's and enable it to read and write information on BBC discs. You can transfer files between your PC's 360K floppy, high density floppy or hard disc and your BBC discs. In addition Beeb DOS allows you to catalogue, format and compact BBC discs and delete, re-name, lock and unlock BBC files, all on PC's.

Each Beeb DOS utility is written in IBM assembler and is run directly from PC or MS-DOS. The Beeb DOS utility can be run from floppy disc, hard disc or RAM drive.

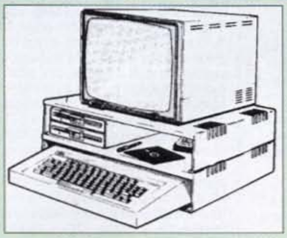
Beeb DOS is supplied on an IBM 5.25", 360K disc complete with a comprehensive operating manual. (Will only work on 360K Disk Drives & read only ADFS and Watford DDFS – not DFS).

Price: £39

(Please write in for technical literature)

Continued→ → → → → →

Plinths for the BBC B & Master 128K Micros



Protect your computer from the heat of your VDU. Our micro plinths have slots for maximum ventilation. The single plinth is suitable for a BBC and VDU, whilst the double height version provides enough room for our stacked disc drive and other peripherals like, Eprom programmer, music unit or simply discs & stationery. The computer slides neatly in the lower section allowing easy access to remove the lid. Colour: Matching BBC Beige.

Single BBC Plinth	420 x 310 x 105mm	**£13**
Double BBC Plinth	420 x 310 x 210mm	**£24**
Single Master Plinth	490 x 310 x 105mm	**£14**
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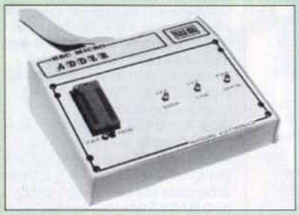
(Carr. Single plinth £2; double plinth £3)

ADDER



The Adder unit connects to the User Port and draws its power from there too. The EPROM is mounted in a top quality ZIF socket. There are no switches or controls as Adder is entirely software controlled.

Features:

- Two ultra fast programming algorithms or standard slow algorithm.
- Supports standard 21V programming and newer 12.5 volt EPROMs. (Software switched).
- The RAM image to be programmed can be built up in many ways. Sections of image can be loaded separately. Part programming. Read EPROM. Edit data in memory.
- Automatic processing to handle a list of files to program into the EPROM.
- Automatic disc buffering to allow programming of 32K 27256 devices from a 32K file without extra effort.
- Verification gives detailed error list and checksums are maintained. There is also a blank check facility.
- Works with all standard filing systems. Generates header code for RFS ROMs to allow Basic programs etc. to be stored in EPROM. More than one file per ROM permitted.
- Programs the following EPROMs: 2516, 2716, 2532, 2732, 2764, 27128, & 27256.

£65 (£5 Carr)

TEX EPROM ERASERS

EPROMs need careful treatment if they are to survive their expected lifetime. Over erasure of EPROMs very rapidly turns them into ROMs! The TEX erasers operate following the manufacturers specifications to give the maximum possible working life by not erasing too fast.

- **ERASER EB** – Standard version erases up to 16 chips. **£34**
- **ERASER GT** – Deluxe version erases up to 18 chips. Has automatic safety cut-off to switch off the UV lamp when opened. **£36**
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Ideal for cleaning and preventing static build-up on TV/Monitor Screens. **£2.50**

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Ideal for removing dust & dirt from Keyboard & similar inaccessible spaces. **£3**

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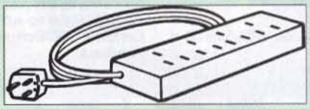
Replacement Flexible 17 way Keyboard Connector **£4**

Surge Protector Plug

Fitted in place of your normal mains plug, this device protects your equipment (and data from corruption), against mains high voltage translent spikes/surges caused by lightening or thermostats switching.

Protection for only **£8.50**

4 Way Mains Distribution Socket



4 way top quality mains trailing sockets. Supplied wired up with mains plug ready for use. Can be screwed to floor or wall if required. Very useful for tidying up all the mains leads from your peripherals. **£9.50**

Aries Spike Cleaner Unit

A 4 way mains distribution unit as above with a built-in Surge Arrester, providing protection for your complete Computer/Hi-Fi System **£14.95**

ROM Extraction Tool

This extremely useful tool allows you trouble free chip insertion and removal from your computer by distributing the removal force over the whole body of any 24 or 28 pin chip. **£2**

Metal Chip Extractor **£3**

28pin DIL Header Plug

SOLDER type **£1.50** IDC CRIMP type **£1.95**

8 Way DIP Switch

Increase the speed of your Disc Drives by soldering this switch to your BBC B or B+ keyboard

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28 pin ZIF SOCKET (Textool) **£6.95**

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(All ready made and tested)

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Supply from BBC power supply to standard Disc Drive Connection: Single **£3.00;** Dual **£3.75**

Disc Drive Interface Leads

BBC to Disc Drives Ribbon Cable
Single **£4** Twin **£6**

Miscellaneous Connectors

	Plugs	Sockets
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Cassette (7 pin DIN)	**40p**	**95p**
ECONET (5 pin DIN)	**35p**	**50p**
Paddles (15 pin 'D')	**150p**	**250p**
Disc Drive Plug 4 way	**100p**	–
6 way Power Connector	**120p**	**150p**

Watford DATA DUCK

Convert two single Disc Drives into one Dual Drive with this simple external unit (Suitable for Disc Drives with PSU. For Disc Drives without PSU, you will also require Watford Power Duck, see below). **£14**

Watford POWER DUCK **£8**

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DS88LS120	£5.25
LM324	£0.45
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SAA5050	£8.75
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27128-250nS (21V)	£4.00
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27512-2	£4.50
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41256-8	£2.00
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6502A CPU	£5.00
65C02 3M	£9.75
65C12	£9.00
6512A	£10.00
6522	£4.00
6522A	£5.00
62256ALS-15	£10.00
62256P-12	£8.50
6818	£4.00
6845SP	£6.00
68B50	£2.95
68B54	£7.50
7438	50p
74LS00	50p
74LS04	50p
74LS10	50p
74LS123	£1.00
74LS163	£1.00
74LS244	£1.00
74LS245	£1.00
74ALS245	£2.75
74LS373	£1.00
74LS393	£1.00
75453	£1.00
75159	£3.00
9637	£2.00
ICL7673PA	£3.00

Assorted ROMS

ACORN ADFS	£25
ACORN BASIC 2 plus User Guide	£22
Acorn BCPL	£42
ACORN DNFS	£17
Acorn FORTH	£32
Acorn Graphics	£25
Acornsoft C Disc	£36
Acorn LISP	£19
Acorn OS B+	£25
Acorn OS 1.2	£14
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BBC PCB Designer	£49
Beebmon	£22
Buffer & Backup	£20
Communicator	£49
Dump Out 3	£25
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GXR-B	£21
GXR-B+	£22
ICON Master	£28
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MASTER OS ROM	£38
Master ULA (47)	£15
Master ULA (60)	£10
Micro Prolog	£25
Microtext Disc	£46
Microtext Rom	£199
NLQ DESIGNER	£25
Numerator – Archi	£69
Numerator – BBC	£39
Pendown ROM	£32
Rom Manager	£20
ROMIT	£29
SERIAL ULA	£13
TED	£35
Termulator B, B+	£28
Termulator Master	£32
Video ULA	£14
ULTRACALC II	£26
1Mb OS ROM	£39

NEW

Hi-Speed, Low Cost Archi Hard Disc Drive

Watford's NEW Innovative IDE interface card brings the latest advances in PC hard disc technology to within reach of the Archimedes user. Because of the integration of the controller and drive electronics onto one compact board, Watford Electronics have been able to include extra features into the drive, such as Caching, where tracks are buffered in fast memory, reducing access times and increasing throughput. All these benefits make IDE drives far more attractive than conventional ST506 drives or SCSI.

Watford's advanced interface allows IDE drives to work on any Archimedes machine, speeds in excess of SCSI devices can be obtained at a fraction of the cost of a SCSI drive.

Up to four drives are supported by the IDE filing system IDEFS, up to two drives can be attached to each expansion card, up to four cards can be installed in a machine. An optional 20Mb or 40Mb hard disc can be supplied on the podule expansion card itself, with its fast transfer rate and power saving modes the drive is ideal for storing commonly used software such as the !Fonts application.

A powerful security feature has been provided with the two unique commands *IDELock and *IDEUnlock, ideal for educational establishments where hacking or tempering may be prevalent that may lead to loss of data. Once locked, the configuration can not be changed until a secret password is used. The !IDEForm Write Protect option is particularly useful in conjunction with *IDELock as it will prevent any unauthorised deletion of data.

By an innovative use of on-board memory, the card will remember its configuration, even if moved to another slot or even a different machine, this also includes the unique security features.

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- Multiple cards per machine (up to four)

Software

- Conforms fully to the Acorn IDE Specification
- All software supplied in ROM
- Filing system 'IDEFS'
- Desktop filer with drive ready detection and disc name under icon
- !IDEForm, WIMP based configuration and formatting software
- Drives can be individually write protected
- Up to four drives over multiple cards
- Power saving standby modes supported with configurable timeout
- Drives can be used without translation in native mode for minimum overhead
- !IDEFSDisk, creates PC emulator hard discs

*Commands

*IDELock
*IDEUnlock
! DEFS
Selects the IDE filing system 'IDEFS'.
*IDEDrives
Displays the configuration and native characteristics of installed drives.
*Configure IDEFSDirCache
*Configure IDEFSBuffers
*Configure IDEFSDrive

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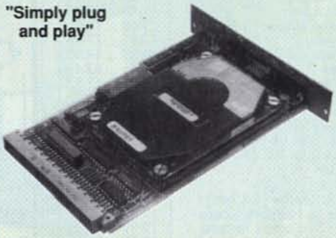

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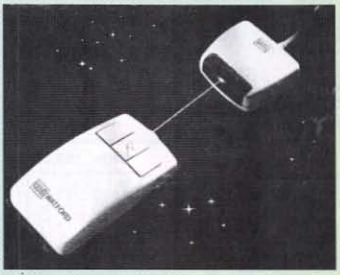

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Effects and Rulers

BEFORE we leave the world of straight text let's take a final look at the relationship between text and frames. It's very simple to add frames of your own and link them together so that text flows from one to another.

Open a new document and insert a very small frame with the Control+I shortcut, then load some sample text into it by dragging. Naturally it won't all fit, and because the frame is an ordinary one you made yourself – it's referred to as a local frame – no new pages are created to hold the excess.

If you now make a new frame you can get the story to flow into it by clicking Select on the first, then Adjust on the second. The receiving frame needs be completely empty – and preferably brand new – for this to work. Other DTP software may have a special link tool to create this type of join.

In the same way you can flow your story from page to page. To make a new page just click on Insert new page in the Edit submenu. Later in the series we'll look at page design, but for now you can have fun creating your own complex page layouts with as many frames as you like, and have continuous text running through them.

Any text in DTP consists of two aspects: The words themselves and what they look like. The latter is described as the attributes of the text – its size, colour, typeface and so on. Up to now any text you've typed in or imported has possessed only the default attributes from when you started Impression. Naturally there's a lot you can do to your text to make it look more interesting, attractive or eyecatching.

Impression uses two different methods to achieve this: Effects and Styles, both of which are supplemented by a text ruler. Only Effects are available on Impression Junior and the demonstration disc. Effects alone will cover many people's needs, but because styles are so powerful and can be misunderstood we'll look at them too.

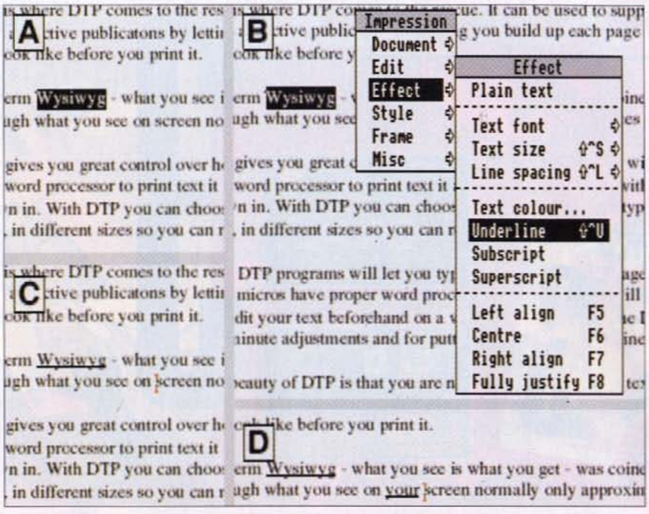


Figure I: Applying an effect. A, marking a region; B, choosing the effect; C, moving the cursor; D, the new word typed after Shift+Control+U

Text effects

For demonstration purposes you can open a new document and import some sample text into it. Take a look at the Effects submenu to see what you can do to your text. We'll use Underline as an example because it's easy to see.

What happens when you click on an attribute depends on whether or not there is a selected region in your text. If there is, the effect will be seen immediately in the marked text. If instead there is a cursor, the effect is remembered at the cursor and waits to be applied to the next letter to be typed at that position.

You can test both of these situations with your document. Following Figure I, mark a word and select Underline from the menu. Now click anywhere in the text, select Underline again – this time using Shift+Control+U – and type a word. Pressing Shift+Control+U a second time turns the effect off, to avoid underlining the space after the word. Using effects really is as easy as that.

If you select an attribute at the cursor and then move it before typing anything, you'll lose the effect and have to choose it again. So be careful – an effect will only be applied as long as you don't move the cursor after making your selection.

Let's consider the other options. Skipping over Plain text we come to Text font, which is a technical way of describing how you choose the appearance of the letters.

The appearance of the Text font submenu will depend on how many fonts you have in the !Fonts directory seen by the filer before you started Impression. There must, of course, be at least one, or else you couldn't type anything at all.

If you've bought a lot of fonts the amount of choice may be bewildering, as you can see from Figure II, but the principle is the same in all cases – just click on the font you want. Try some out for yourself.

Changing the size of letters is fairly obviously done via the Text size submenu. As well as various preset values ranging from 8 point to 24 point – a point is 1/72 of an inch, which makes the given range of text sizes quite small to quite large. There are items called Condensed and Expanded, and one at the bottom: Other.

Condensed simply squashes text to about 60 per cent of normal width, while Expanded makes it about twice the normal width. These may be familiar to you as the equivalent effects on a dot-matrix printer in text mode.

The last option, Other – with a key shortcut of Shift+Control+S – brings up a small dialogue box to let you choose a type size of your own.

You can type any number in the box and make your text as large or as small as you wish – subject to the limits of the frame size at the one extreme or of visibility at the other. The On button applies the effect, and Off removes any applied size effect.

The Line spacing dialogue box can also be reached by Shift+Control+L and lets you choose the distance between the bottom of one line of text and the bottom of the next line. Don't confuse it with the

Bruce Goatly guides you through the relationship of text to frames

amount of white space between lines – if you use a figure smaller than the type size you can get successive lines to overlap, as in Figure III.

If no value is set, Impression automatically uses a line spacing 20 per cent bigger than the largest type size on the line above, which generally gives an acceptable white space between lines.

You can add colour to your text on screen, although you'll obviously need a colour printer to get the full benefit from it. An ordinary printer will show colours as shades of grey. The Text colour option calls up a Colour picker dialogue box to let you do just that. The available colours are shown as a palette at the right, and you can quickly choose one by clicking on it.

If you prefer, you can move the sliders with the mouse, but you will still only get the closest match from the colours shown on the palette if you are working in a 16 colour mode. It's best to stick to the RGB setting – CMYK and HSV are for specialists.

The Subscript and Superscript options are like Condensed and Expanded in that they correspond to native effects available on dot-matrix printers. Have a go and see what they look like.

The last four effects, from Left align to Fully justify, affect the layout of the text on the line, and we'll be considering these at a later date.

The effect option we passed by earlier, Plain text, is used to cancel out all effects currently active in a marked region or at the cursor.

Text rulers

If you are using Impression Junior you'll find Ruler in the main menu just below Effect. Users of Impression 2 will have to look in the Style submenu. Either way, find the Edit ruler option and click on it. This presents a special dialogue box at the top of the window, as in Figure IV – it looks like a ruler because it is one, and much more besides.

The biggest difference between effects and rulers is that you can set up a ruler to suit your needs and give it a meaningful name. Then whenever you want to apply the same layout you can call up the ruler instead of redesigning it, which saves time and makes for consistency.

We'll put this concept into practice in a future article, but first let's take the items one at a time. Along the bottom edge there's a scale. Above it towards the left are the units that it's marked in – click there to change them.

Notice that zero on the scale coincides with the left edge of the selected frame. Note too the symbols running along the scale – these represent margins and tab stops.

Taking them in the order they appear in the box over the scale, we have left and right facing flags – the left and right margins, a bent arrow – the first line margin, and four triangular tabs of various types.

The left and right margins are exactly what they seem. They show how close to the left and right edges of the frame the text will be permitted to approach. So if you set both margins 1cm from their respective sides, there will always be 1cm clear on the left and at least 1cm on the right.

This applies even if you move the right edge of the frame or if the text flows into a frame of different width. Try inserting a new frame – note that the ruler adjusts itself automatically to whatever frame is currently selected – and change the frame's width. The margins remain constant. Remember, though, that frames can have a horizontal inset value too and any margins are added to the inset.

The bent arrow, called the first line margin, is applied to the first line of a paragraph only. If it is to the right of the left margin, paragraphs will have normal indents, like the text you're reading now, whereas if it is to the left, first lines will hang clear of the rest of the text, giving a hanging indent.

The four tab types are illustrated in Figure V. The effects they produce, which are used extensively in tables, are explained by their names – left, centre, right and decimal – and you move from one to another in text with the Tab key.

You can slide a margin or tab around on the ruler by dragging it with Select on the mouse, and when you release Select the symbol sticks back to the ruler where you dropped it.

However, if you drop a tab in the box at the top you can remove it from the ruler altogether. If you drop a margin in the box you remove that setting, but if you then click on OK any margins you have removed will be assigned default values. Conversely you can drag symbols out of the box and on to the scale – only one of each margin type but up to assorted 32 tabs.

If you click Menu on the ruler and select Enter values you can position tabs and margins accurately by typing distances numerically.

The combined use of a hanging indent and a tab gives a neat appearance to a numbered list. Try setting a first line margin of 0cm and then a left margin and a left tab both at about 0.7cm. Click on OK to apply the ruler, then type a number, a full stop, press Tab, type several lines and press Return. Repeat this a few times and you've formatted your first text.

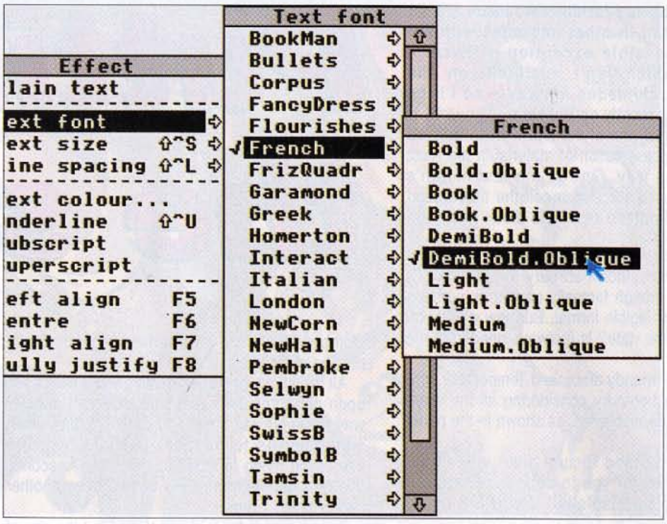
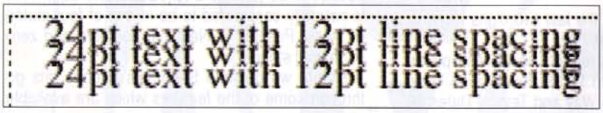


Figure II: A slightly intimidating text font submenu

Key tip – menu magic

If you want to apply several effects at the same time, use Adjust rather than Select to choose each. That way the menu doesn't disappear after each selection.



24pt text with 12pt line spacing
24pt text with 12pt line spacing
24pt text with 12pt line spacing

Figure III: The effect of underspacing lines

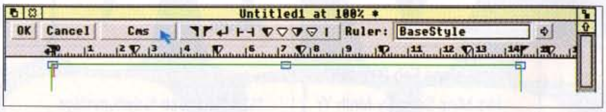
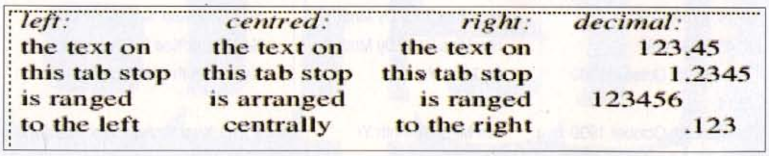


Figure IV: The text ruler



left:	*centred:*	*right:*	*decimal:*
the text on	the text on	the text on	123.45
this tab stop	this tab stop	this tab stop	1.2345
is ranged	is arranged	is ranged	123456
to the left	centrally	to the right	.123

Figure V: The four tab types

Putting on the style

Schema's facilities are much greater than in other packages with the possible exception of Excel – which isn't available on the Archimedes anyway – so I'll be concentrating mostly on Schema.

Styles are just one of the topics to do with the legibility and presentation of material in the most unambiguous way. One of the last month's examples was to place in a cell the time based upon the computer's real time clock using the function NOW().

This gave the result 62817520459 which is the time in seconds since February the 29th 0 BC. This number, though factually correct, is perhaps not in the most legible format. But how would you prefer to see the date? Is it always needed in the same format?

As we have already discussed Temporal or time functions let's begin by considering all the ways that time can be displayed, as shown in the panel below.

The column called Picture gives you all the details required for you to define the way you want time to be displayed if you are using Schema.

- Hours can be displayed based on a 24 hour clock (%24), a 12 hour clock (%12), can have z included (%z24 or %z12) to suppress the leading zero if the hours are below 10 and can even have something written after (%24Hrs). You can define the morning or afternoon as well by using %am or %pm.
- Minutes can be displayed either as straight minutes (%mi) or can have similar modifications to that of hours such as suppression of the leading zero (%zmi) and also something written after such as (%zmiMins) or (%zmimins).
- Seconds are entered as %se and follow the same rules as hours and minutes,
- Days can be as a number denoting the day of the month (%dy) and/or as a day of the week (%we). You can even abbreviate this to say three letters (%w3). For %dy you may like to have the number followed by 1st, 3rd or 4th. This can also be done using %dy%st. You can even have a number of weekday (%wn) i.e. 0 = Sunday and week number in a year (%wk) or day number in a year (%dn).
- Months can be displayed either as a number (%mi) or as a name (%mo) full length or shortened (%m3).
- The year can be just the last two digits (%yr) or all four digits (%ce%yr).

In comparison Pipedream 3 has three options for setting the time 30.10.89 the English Way, 10.30.89 the American Way and Textual Dates 30 October 1989. For your particular needs these may be sufficient.

All the above has been dealing with time based upon our computer's real time clock but another way that you use time is to define a date when something is to happen. It could be quite interesting trying to work out how many seconds this new date is from 0 BC but we have another option called TTime.

If for instance I was trying to find out the day of the week on which I was born I could enter TTIME(1946,2,15,4,12,0) making me a Friday baby. The order is year (1946), month (February), day (15th), hour (four in the morning), minutes (12) and I'm afraid I don't know how many seconds it was (zero). Answer is 4hrs:12Mins Fri 15th Feb 1946.

Example	Description	Picture
62817520459	Secs since Feb 29th 0BC	-
15:14:19 09/10/90	Hrs Mins Secs Dy Mnth Yr	%24:%mi:%se %dy/%mn%yr
03:14:19 09/10/90	Hrs Mins Secs Dy Mnth Yr	%12:%mi;%se %dy/%mn/%yr
3:14:19 09/10/90	Hrs Mins Secs Dy Mnth Yr	%z12:%mi:%se %d/%mn/%yr
Tuesday 9th October 1990	Dy Mnth Yr	%we %zdyth %mi %ce%yr
15:14		
Tuesday 9th October 1990	Hrs Mins Dy Mnth Yr	4:%mi %we %zdyth %mi %ce%yr

The way time can be displayed

Project planning

Another example would be to use a spreadsheet package for planning a particular project you have. A project is going to start on January the 1st 1992 and last for three months. If the start date alters then adjust TTIME to suit your new requirement.

The number of time pictures that you can use in Schema are legion but don't forget that once you've defined both the style and picture formats they will be saved with your spreadsheet which you are keeping in your Stationery cupboard for use at a later date. So it should need to be set up only once.

By far the greatest amount of information needed to be put into a spreadsheet is data. This is normally considered to be in one of four states or types: Positive or Negative numbers and zero or Textual strings.

Before we get into Schema's options lets go through some of the features which are available in Pipedream 3. Positive and Negative numbers can have between 0 and 9 decimal places or they have a floating format. Negative numbers can be displayed as either -123456 or (123456). The brackets are the more usual way for financial people to work while the - sign is preferred by non-professionals.

The thousands separator is one area where countries differ in how a number is displayed. In UK we tend to use the comma – 123,456 – while in the rest of Europe the decimal point is most often used – 123.456. Pipedream 3 offers both options as well as no separator – 123456 – or a space – 123 456.

These, along with justification for text, you will find sufficient for most of your needs, although, when you compare these with Schema, which has a formidable army of options, you start to see the great detail that you can go to in order to make a spreadsheet presentable.

Schema allows you to create very many different styles. Each one – which includes a "Picture", defines how a particular group of cells having that particular style, looks on the spreadsheet. Each style allows the following areas to be defined: Picture, foreground colour, background colour, typeface font, typeface weight, typeface width, typeface height and alignment.

Each style can be set up to display a different format for the four different states +ve, -ve, 0 and text. This month I'll cover Pictures while in the next article we'll discuss in more detail the various stylistic attributes available and how to get the best from them.

Pictures

The pictures, or way we want numbers displayed, depend on many things such as who we are, what we are doing, who it is for and, to a certain extent, the country we live in. Similar to Pipedream 3 Schema allows pictures to have a comma as the thousand seperator and a full stop as the decimal point. For instance, 123,456.789 (%sa), the opposite way round (123.456,789) as %sb or no thousand separator (123456.789) as %sc. Figure I shows a few examples of these options.

As well as this we can then add the preferences we want. If for example we required numbers to an accuracy of four decimal places our picture format would be %sa.4 giving us 123,456.7891.

If we are displaying financial information we probably would like the currency symbol to be included. Once again simply add this to the

Barry Mallet continues his series on spreadsheets with a range of presentation options

picture style such as %sa£.2 giving £123,456.79 or perhaps %sa£.2p giving £123,456.79p. If it was Swiss francs we were dealing with then perhaps %sbSF.2 would be our best picture giving Sf123.456,79.

For negative numbers we could use %sa-£.2 giving -£123,456.79 or %sa£.2DR which would display £123,456.79DR or %sa(£.2) giving a picture of (£123,456,79).

For percentage numbers we can create another picture style and call it percentage. For displaying data in a spreadsheet having a picture of 99.32% we simply define a picture of .2%%.

As you recall Schema allows for many different styles to be included and within these styles also allows for +ve, -ve, zero and text each to be set up differently. In our next article we will further expand this area of picture and styles but let me close with these last two interesting points.

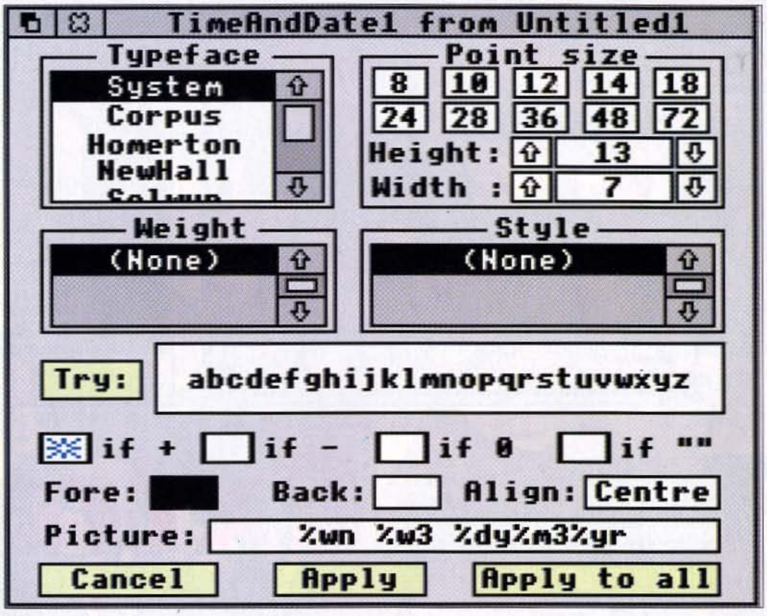
As a quirk of this system of being able to display a different picture for all +ve, -ve, zero and text strings you can also make your spreadsheet totally unreadable to any one other than yourself. If for example you make the picture field for text RAPHAEL then all text will appear on the printed sheet as RAPHAEL, although the cells actually contain the real text. You may or may not find this useful for encrypting information on your spreadsheet.

You may also find that this point answers some of the queries you inevitably will have when some text or numbers do not display as you expect.

- *Next month we'll tackle the other remaining options which you can use to make your document/spreadsheet look presentable.*

More style options

Menu - Style - Edit	Brings up the window for adjusting the selected style.
Menu - Style - Select	Gives a list of Styles from which you can select
Menu - Style - Copy	Allows for the creation of a new style based upon the previously selected style
Menu - Style - Rename	To rename the selected style
Menu - Style - Delete	Deletes a selected style


TimeAndDate1 from Untitled1
Typeface
System
Corpus
Homerton
NewHall
Point size
8
10
12
14
18
24
28
36
48
72
Weight
(None)
Style
(None)
Try:
Cancel
Apply
Apply to all

Height: 13

Width : 7

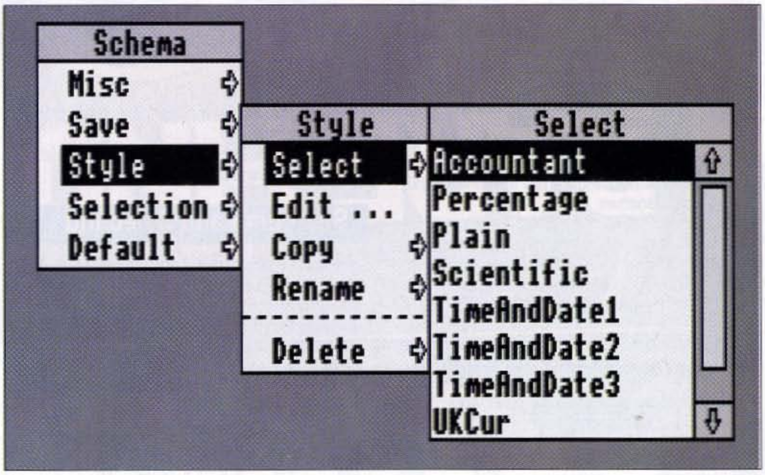
abcdefghijklmnopqrstuvwxyz

☒ if + ☐ if - ☐ if 0 ☐ if ""

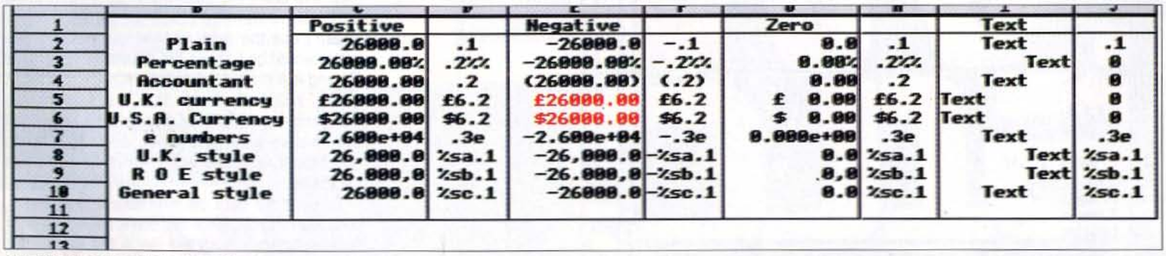
Fore: ■ Back: ☐ Align: Centre

Picture: %wn %w3 %dy%m3%yr

The time and date picture control

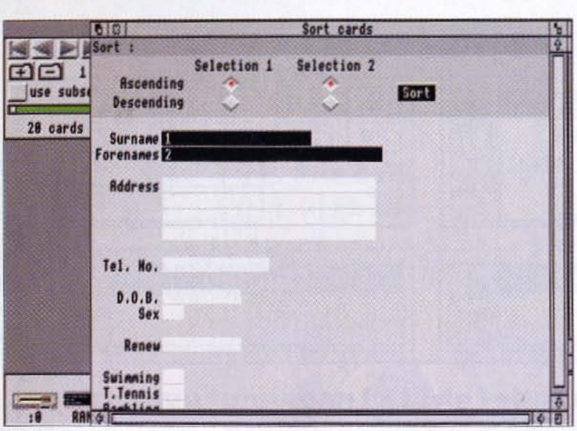

Schema
Misc
Save
Style
Selection
Default
Style
Select
Edit ...
Copy
Rename
Delete
Select
Accountant
Percentage
Plain
Scientific
TimeAndDate1
TimeAndDate2
TimeAndDate3
UKCur

Selecting a style



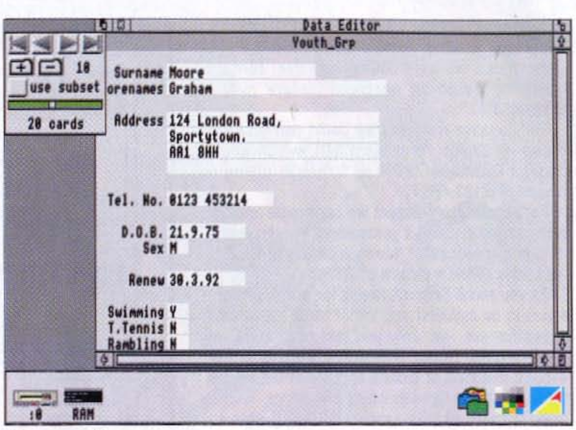
1		Positive		Negative		Zero		Text	
2	Plain	26000.0	.1	-26000.0	-.1	0.0	.1	Text	.1
3	Percentage	26000.00%	.2%%	-26000.00%	-.2%%	0.00%	.2%%	Text	0
4	Accountant	26000.00	.2	(26000.00)	(.2)	0.00	.2	Text	0
5	U.K. currency	£26000.00	£6.2	£26000.00	£6.2	£ 0.00	£6.2	Text	0
6	U.S.A. Currency	$26000.00	$6.2	$26000.00	$6.2	$ 0.00	$6.2	Text	0
7	e numbers	2.600e+04	.3e	-2.600e+04	-.3e	0.000e+00	.3e	Text	.3e
8	U.K. style	26,000.0	%sa.1	-26,000.0	-%sa.1	0.0	%sa.1	Text	%sa.1
9	R O E style	26.000,0	%sb.1	-26.000,0	-%sb.1	.0,0	%sb.1	Text	%sb.1
10	General style	26000.0	%sc.1	-26000.0	-%sc.1	0.0	%sc.1	Text	%sc.1
11									
12									

How different styles affect a spreadsheet


Sort cards
Sort :
Selection 1
Selection 2
Ascending
Descending
Sort
use subset
28 cards
Surname
Forenames
Address
Tel. No.
D.O.B.
Sex
Renew
Swimming
T.Tennis
:0
RAM

Surname 1
Forenames 2

Sort options


Data Editor
Youth_Grp
18
use subset
28 cards
:0
RAM

Surname Moore
Forenames Graham
Address 124 London Road,
Sportytown.
AA1 8HH
Tel. No. 0123 453214
D.O.B. 21.9.75
Sex M
Renew 30.3.92
Swimming Y
T.Tennis N
Rambling N

The command box

Extracting data

TO make things clearer we'll stick to one package this month, Iota's Junior Database. This contains the basic structure needed and is inexpensive as well as easy to use. It also illustrates well the principles of how a simple database can be used.

Sorting

After creating the layout for the club file, the data on the members can be entered. It is then usual to sort the records into alphabetical order – a record being the data about a particular member. To do this, click Menu inside the database window and select the Sort option.

Generally files on people are sorted in alphabetical order of surname, with those sharing the same surname being sorted in alphabetical order of their forenames.

To achieve this ordering, click Select over the Surname field to make that the main sort field, and Adjust over Forename making it the secondary sort field. The records should be in ascending order – A first – which is the default option. Finally, clicking on the Sort box will rearrange the records into the required order.

From now on the database will always add new records in the correct place in the sorted file.

Searching and Selecting

The easiest way to browse through the file is to use the buttons at the top of the command box on the left of the data window. Clicking on either of the two outer buttons moves to the beginning or end of the file, the inner ones move one record at a time in the indicated direction.

One of the uses we identified for the database is to provide the data for sending membership fee reminders. Suppose we want to send a reminder to everyone whose fees become due before the end of January 1992.

Once again click Menu within the data window, but this time select the Search option. Click on the Allow expressions box and use the mouse to place the caret in the Renew field, then type the expression:

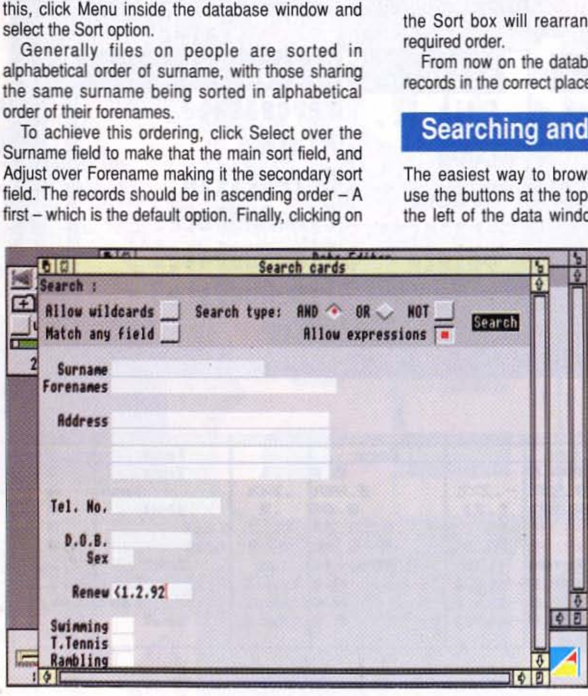
```
<1.2.92
```

To perform the selection click on Search. The records will be selected and you can browse through the subset corresponding to people whose membership is about to lapse.

At this point the details can be written down and letters sent to these people. But that doesn't use the power of the computer. Much better would be to save the details in a separate file and use them as data for a standard letter.

1st Word Plus is the most common wordprocessor on Risc OS machines so we will use that to write the letter, and 1st Mail to combine the letter with the data from the database.

To save the data on members due to lapse, click Menu and select the Save data and CSV options before saving the file in the usual Risc


Search cards
Search :
Allow wildcards ☐
Search type: AND ● OR ○ NOT ☐
Match any field ☐
Allow expressions ☒
Search
Surname
Forenames
Address
Tel. No.
D.O.B.
Sex
Swimming
T.Tennis
Rambling

Renew <1.2.92

Search options

John Allen gets to grips with the techniques of data management and mail-merging

OS fashion, naming it and dragging the icon to a directory window.

The data is saved in Comma Separated Value (CSV) form which means each field is separated by a comma with a record to each line. This is precisely the format of the data file required by 1st Mail.

Drafting a letter

The next stage is to create the skeleton letter using 1st Word Plus. This is done in the normal way, using light type commands to control 1st Mail. It is important to ensure that the number of data fields specified in the read line is the same as the number of fields in each record of the database, although they don't have to have the same names.

Names can be abbreviated so that it is possible to get them all on one line. Don't forget to put a hard page break at the end of the letter so that each one is printed on a separate page and to use the page layout dialogue box to remove the page numbering. Save the completed document to a file.

The data from Junior Database is in a file in CSV format and has a corresponding CSV icon. Although this is in the correct form, 1st Mail will not accept it. It expects the data file to have a text icon – a silly design error in 1st Mail – so it's necessary to change the file type of the data file to text.

To change the file type, display the directory window containing the file, then press F12 to get a prompt at the command line. Finally use the Settype command to change the file type to *Text* before pressing the Return key to get back to the desktop.

For example if the window is headed "adfs::Sportytown.$" and the file is called "Renewal" you would type:

```
settype adfs::Sportytown.$.Renewal Text
```

to achieve the required result.

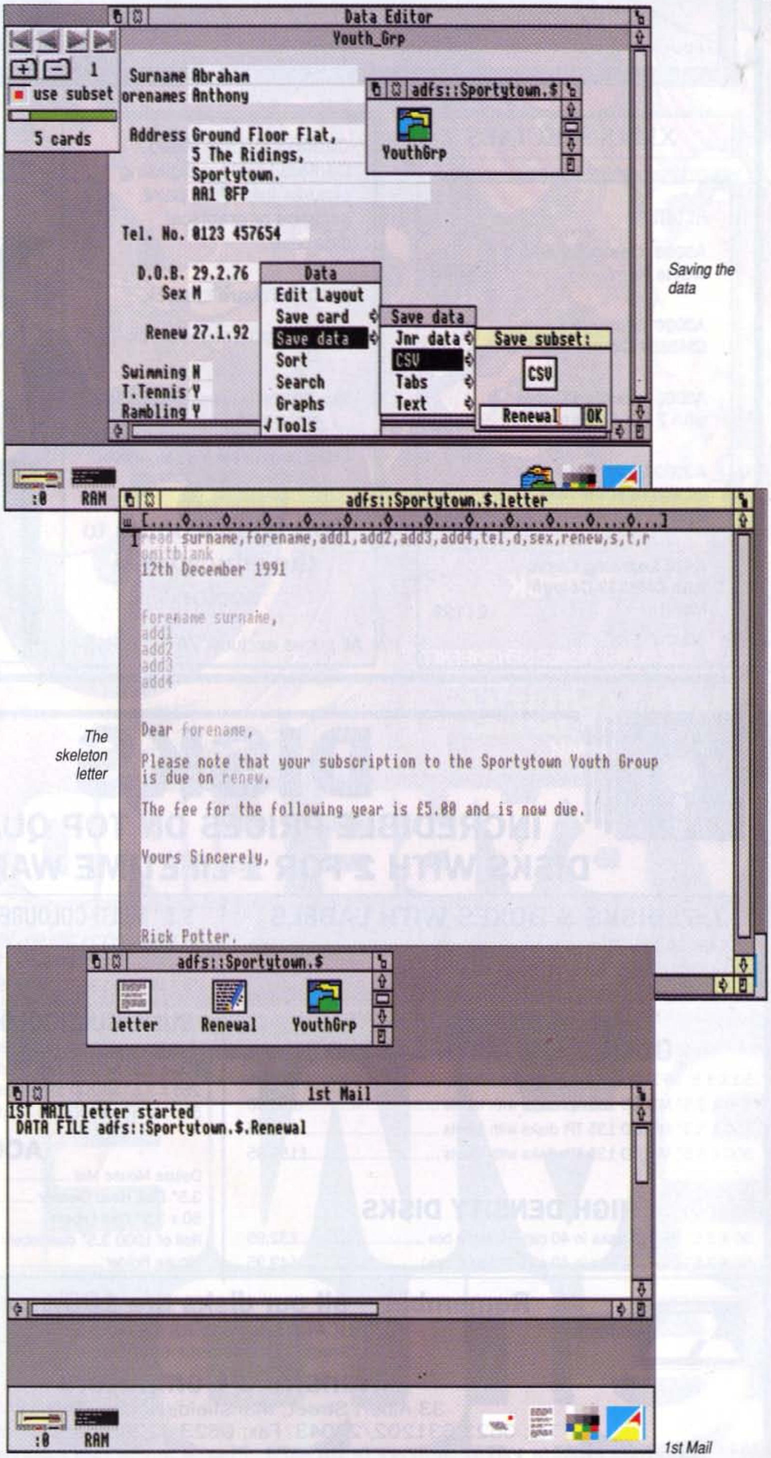
Printing a letter

Click on the 1st Mail icon and select Printer from the menu, selecting the correct printer by dragging your usual 1st Word Plus printer driver icon into the dialogue box.

Then drag the letter file icon on to 1st Mail, set the options in the dialogue box – normally you leave them as they are – and drag the data file into the 1st Mail window. The letters will now be printed.

This is a simple example of mail-merging, something that most database users do frequently. To recap: We have selected particular records, saved then in a data file and used that file to personalise a standard document which has been produced by a word-processor.

● ***Next month we will see other ways of selecting and manipulating records.***



Surname Abraham
orenames Anthony
Address Ground Floor Flat,
5 The Ridings,
Sportytown.
AA1 8FP
Tel. No. 0123 457654
D.O.B. 29.2.76
Sex M
Renew 27.1.92
Swimming N
T.Tennis Y
Rambling Y
Renewal

Saving the data

```
read surname,forename,add1,add2,add3,add4,tel,d,sex,renew,s,t,r
omitblank
12th December 1991


forename surname,
add1
add2
add3
add4


Dear forename,

Please note that your subscription to the Sportytown Youth Group
is due on renew.

The fee for the following year is £5.00 and is now due.


Yours Sincerely,




Rick Potter.
```

The skeleton letter

```
1ST MAIL letter started
 DATA FILE adfs::Sportytown.$.Renewal
```

1st Mail

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DISCovery

Terry Blunt finds out exactly what's on those tracks

Product: Investigator
Price: £27.95 inc. VAT
Supplier: The Serial Port, 30-33 South Street, Chichester, West Sussex, PO19 1EL
Tel: 0243 531194

THE new Investigator utility from The Serial Port is intended as general purpose disc manager. It can examine the format as well as the data in any sector of a disc, and can operate on a wide range of different formats, including the old BBC DFS and Dos.

The software consists of five related applications, all of which are described in considerable detail in the 38 page user guide.

A useful feature of the manual is the way each section begins with a couple of paragraphs with minimal information for getting started.

The design concept is that it should be able to examine, read and write any disc format that the Archimedes disc controller and the drives themselves are capable of handling – this is known as the physical format.

Although simple in principle, you can lay out a disc within this framework in a great variety of ways and many copy protection techniques work by writing *in the cracks* to try and prevent you working out the, so called, logical format.

The original Investigator grabbed the whole machine, whereas version 2 starts up from the DeskTop in the normal way and all the applications can be loaded on to the icon bar.

However, the main Invest II application is not multi-tasking. The Serial Port say that one reason for this is to maintain familiarity with the older version. That sounds rather like an excuse to me.

Mind you, some operations are so processor intensive that multi-tasking becomes impractical anyway. Indeed, the hourglass display slows dramatically at times. Nevertheless, Invest II does provide a clean return to the DeskTop when you have finished.

The onscreen layout is effective but a bit awkward, particularly when compared with normal DeskTop applications. For example, I would have liked a clearer exit icon.

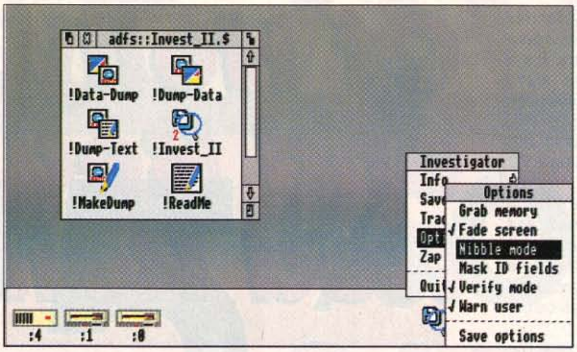
Investigator has the ability to create compressed dumps of a disc. This means that all the data, including format details, can be copied to another disc, or even a hard disc, and later restored complete.

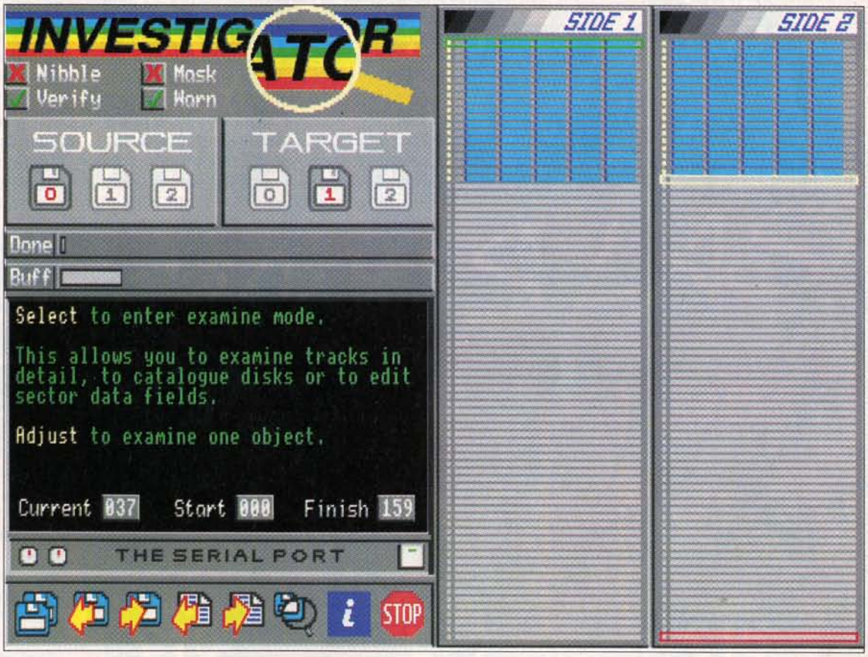
In theory, you should be able to archive, say, a complete Dos format disc on a normal ADFS format floppy.

In practice there are difficulties with some formats and some protected software. In particular, I had problems trying to copy Atari discs. To be fair, I was trying to copy discs originally written on an STE, a machine notorious for incompatibility *features*. The Serial Port are working on these problems as they come across them.

It is probable that you could use Investigator to design your own protected disc formats, but to do so you would need to understand the workings of disc systems in very considerable detail. The manual gives a very informative insight into this. An understated but, in my view most important use to which Investigator can be put, is that of recovering data from damaged discs. At the time I got my review copy I wanted to pick up quite a long text file from an old DFS format disc.

To my surprise I discovered that it had become corrupted while in storage. My usual DFS reader wouldn't touch it, but using Invest II and Dump-Data together, I was able to recover more than 80 per cent of the disc contents with comparative ease.





Select to enter examine mode.

This allows you to examine tracks in detail, to catalogue disks or to edit sector data fields.

Adjust to examine one object.

Current 037 Start 000 Finish 159

Summing up

Investigator combines archiving with sophisticated copying and recovery.

It falls a little sort of its objectives, but nevertheless represents real value for money if you need to handle discs for a wide range of micros.

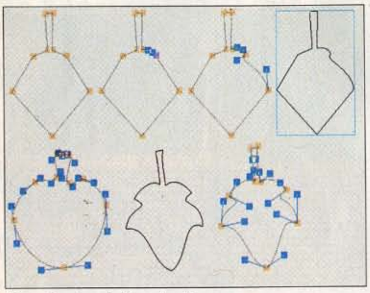
Of Holly, Ivy and Red, Red Reindeer

I THOUGHT an interesting exercise for this month would be to design some Christmas cards using DrawPlus. It's a public domain program with more features than !Draw but is basically the same. Subscribers will find a copy on this month's Archimedes subscription disc and anyone can obtain a copy by contacting a PD library.

Although Christmas cards may look good in colour they can look very sharp in black and white too. If you can get a single laser copy of a black and white version of your Christmas card you can photocopy it on to card. If you don't fancy black and white you can always colour them using felt pens or coloured ink.

The theme for this card will be the carol *The Holly and the Ivy*. The card decoration will be based around holly and ivy leaves and the text of two of the lines of the carol will fill the centre.

This combination of text and border looks good but I thought it needed something a bit special to liven up the text. So we are going to design our own decorated initial such as you might see on illuminated manuscripts.



Stage by stage leaf construction

On the starting blocks

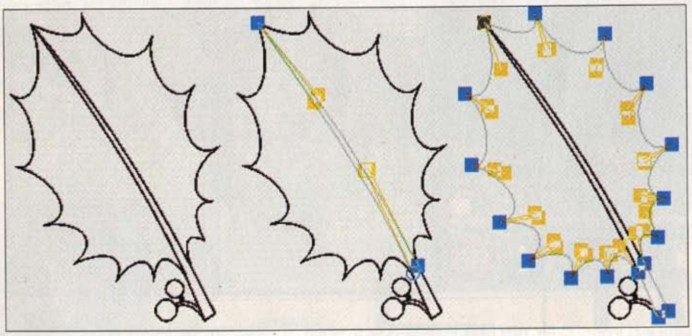
So how do you begin to draw a holly or ivy leaf? You could tape one to the computer screen and draw round its outline or you can start with a rough leaf shape and add extra sections pulling the leaf details into shape as you go.

Turn off the gridlock as you don't need to accurately align anything at this stage. To draw an ivy leaf select Create Line and draw a rough leaf shape with five points round the edge plus a stem. If you can't find an ivy leaf find a picture and work from that. Your first leaf might look more like a trowel but by turning successive lines into curves you can make it much more natural looking.

To change a line into a curve you need to select the Edit option and press the Adjust button – highlighting the control points. Press Adjust on the control point at the end of the line you want to change to a curve and it will turn purple. Two extra blue control points will appear on the line allowing you to drag them to produce the curve you need. I've exaggerated the first two curves to show what I mean. To see what the curves look like press Select to turn off the control points and display the outline. Continue round the leaf outline until all the lines are changed to curves. You might be tempted to draw the leaf outline with curved lines – do and you'll end up with something like an apple.

At this stage the leaf was looking a bit too curved so I added extra points to give a definite sharp incision between the sections of leaf. Inserting extra control points is done by pressing Adjust on the control point after the line on which you want an extra one and then selecting the Insert Point option from the Edit Menu.

This adds control points in an already crowded space so use the Enlarge option from the Settings Menu to double the size of the leaf so you can see what you're doing. The holly leaf is somewhat easier to draw.



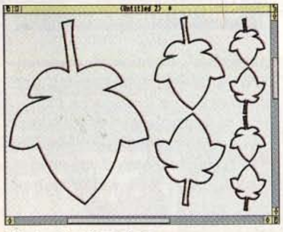
The holly leaf

Moving away from basics

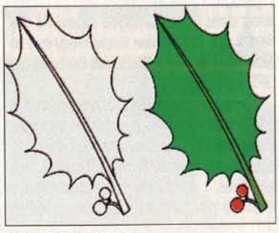
Once the leaves are drawn you might want to thicken the outline. You can do this by selecting the leaf and using the Pathstyle Menu to adjust the thickness to perhaps 1 point.

You can then copy the leaf using Control+C or the Copy option and enlarge it by 0.5 – which reduces it to half-size – and repeat the procedure to reduce it to quarter size. If you then copy three quarter size leaves, line them up and reverse alternate leaves you start to get some idea of what a border might look like.

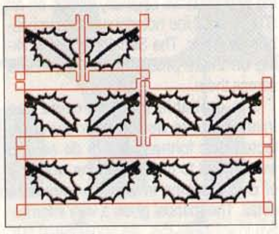
So that's the leaves, what about the illuminated or decorated letter? Well, this needn't be very elaborate and may consist of a capital letter, a few decorative vines or swirly bits and a couple of leaves which you've just designed. The important thing to remember when working with Draw or DrawPlus is that you can produce very elaborate designs on screen which look absolutely wonderful



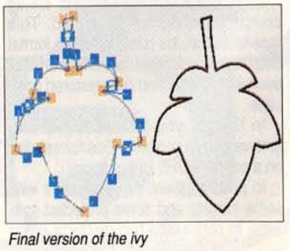
The ivy at various sizes



Colouring the berries



Doubling the leaves



Final version of the ivy

Steve Bruntlett introducesyou to some of the seasonal aspects of !DrawPlus

but when they're printed out on a small scale you can't see 90 per cent of the detail.

If you are printing out your card at A5 size the decorative letter will perhaps be about the size of a large postage stamp. Do use the zoom option to see how much, or rather how little, detail you actually need.

Start by creating the letter at the size you need. A letter the size of a small postage stamp would be about an inch high. So by selecting Create Text and going to the Pathstyle Menu you might expect to be able to create a letter to exactly that measurement. But all the choices are defined in points. Not to worry, points relate directly to inches, 72 point being exactly an inch.

Picking a font

So what typeface or font do you use? It depends what fonts you have access to but for simplicity's sake we'll use Trinity Bold. Select Trinity from the Font Name option under the Text Style Menu and then select Bold from the Font Style option.

In this respect DrawPlus is more advanced that Draw which only gives you the medium font. You can turn the letter into a graphic object by selecting it and using the Text to Path option available under the Special menu. This in turn allows you to play around with the control points of the letter to change its appearance.

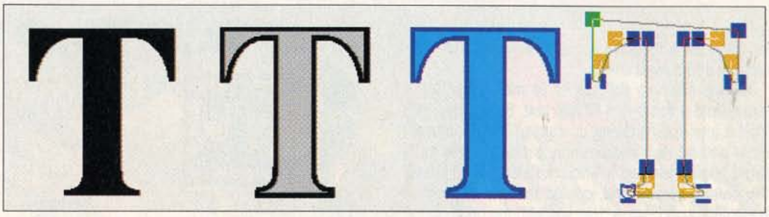
Firstly change the fill colour to light blue and the line colour and thickness to 1 point dark blue. This gives a very thin top to the letter, so move the control points up to thicken the crossbar of the T. Select the top two control points in turn and used the up cursor key to adjust the position, pressing Select to change from Edit back to the displayed letter.

So what's next?

Some kind of ivy plant draped over and around the letter with a border to highlight the decorated letter would be effective. Draw a swirl which might drape around the letter and fill in the blank bits and maybe add an offshoot to fill the bottom right corner. These two sections can be joined together and given a line thickness of say 1 point just to see what you're doing.

Move the swirl over the letter to see what it looks like. If you want the swirl behind simply select it and use the Back option from the Select Menu. I suggest you use Zoom to enlarge your view of the letter at this stage to put on the ivy leaves.

To drape the letter with ivy leaves simply drag the ivy leaf file icon from your disc directory and drop in somewhere near the decorated letter. You may not be able to see your leaf at this stage so use Zoom to reduce your page size so that you can see it all on screen at once. You should then be able to see your leaves and it's a simple matter to move them next to the decorated letter.


Constructing the T

You'll probably find that they're much too big so reduce them to whatever size you prefer using the Scale option under the Arrange Menu. You'll likely need to reduce the line width to 1/2 point too. The line width stays the same no matter to what size your graphic is reduced or enlarged.

You can then start positioning the leaves on the stalk to look as plant-like as you can manage. To do this you should rotate some of the leaves to make them look more natural, so copy the original a few times and rotate these using the Rotate/Skew option under the Arrange menu. You can also try Skewing the leaves by varying degrees in different directions for variety.

Customising your design

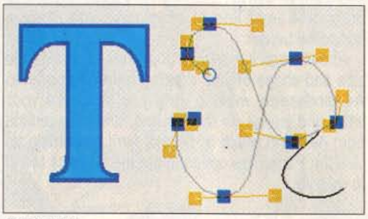
Try creating a dozen variations on the leaf and changing the fill colour in the process. Use the cursor keys for fine positioning control. Remember that the easiest way to change the scale and proportion of a selected individual leaf is to drag one of its ears with the Select button and the orientation by dragging with the Adjust button.

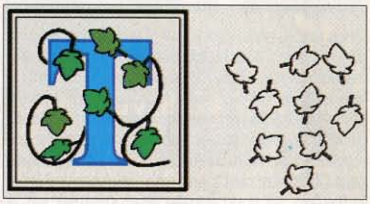
Don't put too many leaves on the stalks and do keep reducing the viewing size to see what it looks like at postage stamp size. If you can see some of the letter outline through the leaves, select a leaf at a time and change the fill colour to white for the black and white version and to light green for the colour version.

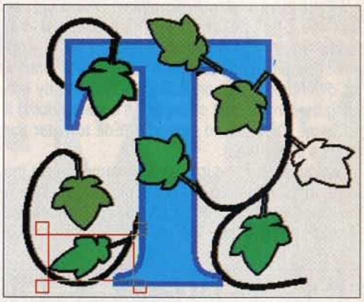
Whatever you do, group the components of your letter before you attempt to move it, otherwise your leaves could end up all over the place. Simply press Select somewhere outside the group of objects and drag the outline box until they're all enclosed and let go. You should now see lots of little red boxes which can be made into a single unit using the Group option under the Select Menu.

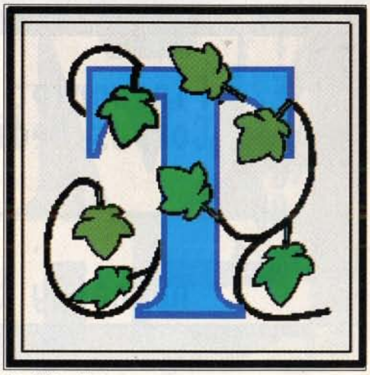
I decided to put a double outline box round my decorated initial but you could use an oval outline

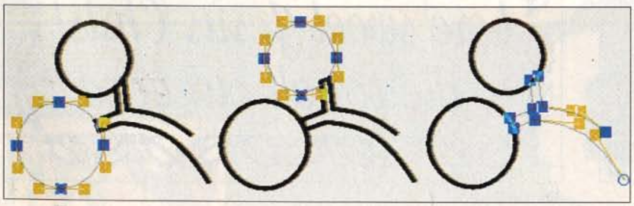
➤


T and swirl


Some duplicated leaves


Skewing the leaves for effect


The finished letter


Holly berries in construction

or construct a rounded corner box using alternate straight and curved lines.

All we need to do now is to make the holly leaves into a frame and fill with text. Select one and load it into your drawing containing the decorated letter and move it into position. I rotated mine to a slight angle, selected a Gridlock setting of 20 times the default screen grid, copied the leaf, flipped it horizontally and moved into line with the original.

From then on it's a simple matter of selecting this pair of leaves, copying and adding them to produce a long line of alternating leaves for a horizontal border.

At this stage it may be a good idea to change the size and shape of your drawing from A4 portrait to A4 landscape, making sure you still have your letter and leaves on the drawing, and then reduce from A4 to A5 which is the size we'll be printing at. Use the Page Size option under the Settings Menu to do this.

Finishing touches

Once you've produced a row of leaves, copy, invert and move them to the top of the screen in line with the bottom row. Copy this row, ungroup the strip of leaves, delete two of them, regroup the rest, rotate them through 90 degrees and move them to the left hand side. Copy this set and flip horizontally and move into position on the right hand side forming your Christmas card frame with the decorated letter in the top left hand corner. Keep Gridlock set to make lining up easier.

All you have to do now is add text. You could use an Olde English font if you can find one but something that looks handwritten seems to work well – just using the italic form of Trinity will make a big difference. You can enter the text line by line using the Create Text option but it's messy doing it that way. It's better to type into !Edit to enter the text in a single block.

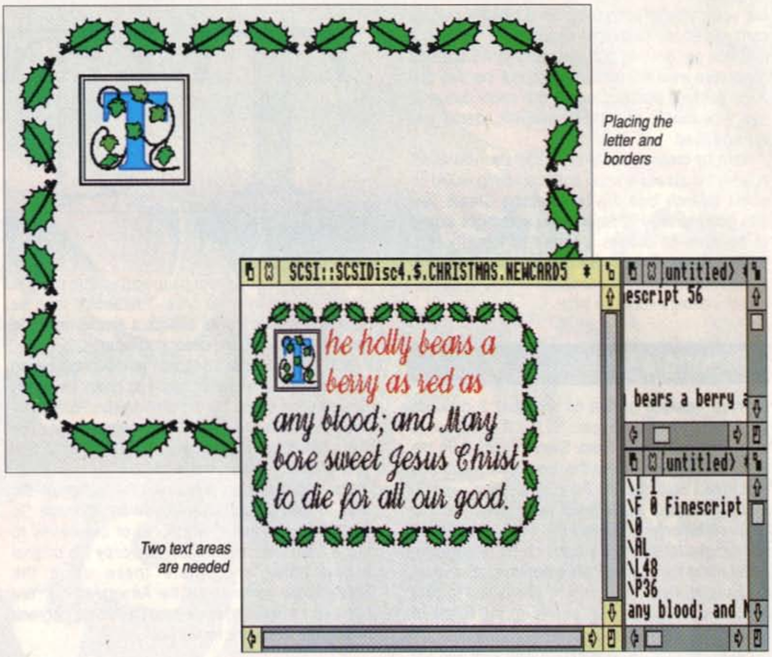
Just type your text into an Edit frame, select the Save option and drag it on to your drawing. Ignore the message about the text not having the standard header and click OK. The text will appear on your drawing in a red select box which can be reshaped. Use the Save Text Area option and drag the text back into Edit where it will now have a header added to it.

Edit the line which has details of the font and size to those you wish to use. Remember to change the line spacing as well. Adding a few spaces before 'he' to allow for the decorated letter worked fine. I tried adding them before 'berry' to allow for the decorated letter block but I couldn't get it to work so I resorted to two text blocks which worked just as well though with no spaces before 'he'.

This seems to be a sensible way of dealing with irregularly shaped text panels. You can keep changing the Edit file as often as you like in terms of altering text size, font and spacing and keep dropping it into the same box in your drawing until it fits properly.

Note that DrawPlus will only access fonts which were available before you loaded it. If you don't want the text justified to both margins, change AD to AL which will left justify the text. It's worth having a look at your User Guide to see what other options there are when using Edit for this kind of work.

Now that you've created a few leaves, a decorated capital letter and produced a frame, get some cards printed, even if you have to colour them by hand, have a go at some party invitations and have a good Christmas.



he holly bears a
berry as red as
any blood; and Mary
bore sweet Jesus Christ
to die for all our good.

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escript 56

 bears a berry a
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\! 1
\F 0 Finescript
\0
\AL
\L48
\P36
any blood; and M
```
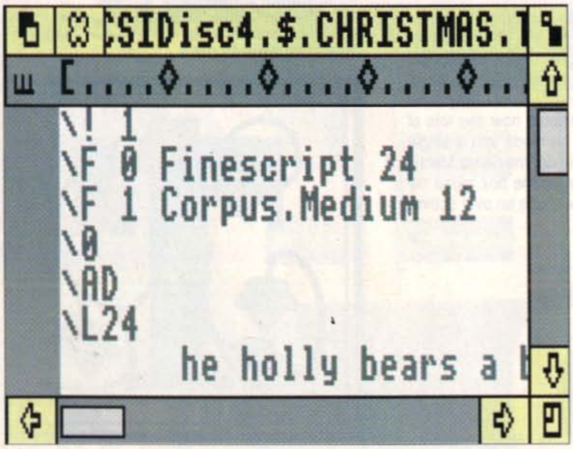

Placing the letter and borders

Two text areas are needed



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\! 1
\F 0 Finescript 24
\F 1 Corpus.Medium 12
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\AD
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        he holly bears a b
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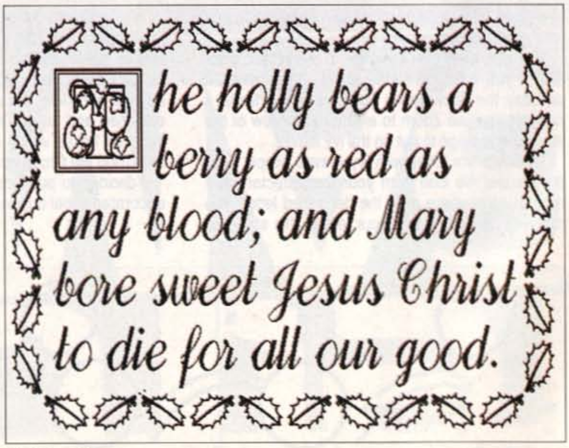
Using Edit to alter the text



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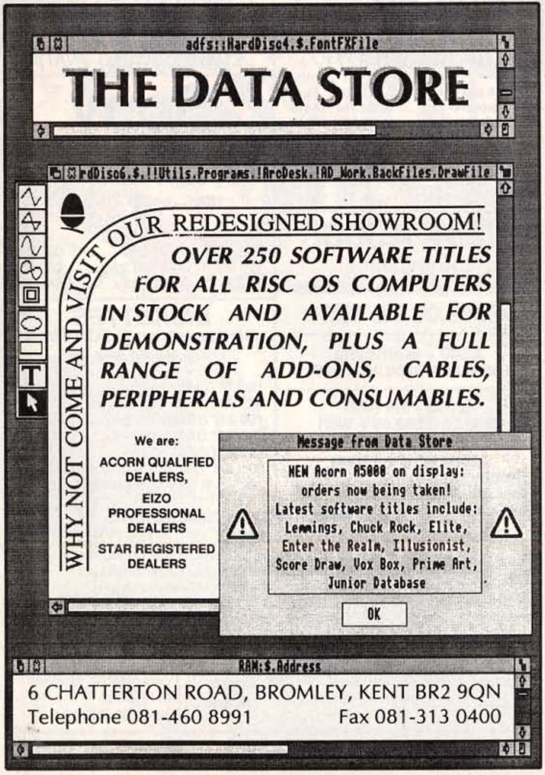
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Product: HCCS A3000 HardCard 45
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Tel: 091-487 0760
Requirements: BBC A3000

Hard News

Geoff Gallacher assesses the pros and cons of the HCCS A3000 Hard Card 45

HCCS's latest release is a piece of expansion hardware allowing you to add a hard disc drive to the BBC A3000 without the large metal box holding the hard drive and power supply.

This involves fitting the hard disc drive inside a podule box and using an external power supply to provide the extra current required by the hard drive. The BBC A3000 doesn't have the spare capacity in its internal power unit to handle anything but the smallest – and therefore relatively expensive – hard disc drive. This is especially so if other options such as memory expansion boards or external expansion cards are fitted to the machine.

The BBC A3000 only has a 5 volt power unit fitted and most of the less expensive drive options such as ST506 and SCSI– Small Computer Systems Interface – require 12 volts to spin the motor which rotates the discs.

HCCS have solved this problem by providing the hard card with its own external power supply unit producing the voltages and current required to run the disc drive without loading the BBC A3000 power supply.

The hard card is basically an SCSI controller and a 45Mb hard disc squeezed into a podule box. The box is slightly wider than the standard podule box such as the ones produced by PRES, but this is for a good reason. On the right hand side there is a fan which ensures that the hard drive doesn't overheat. Incidentally, overheating is the second most common cause of hard-drive failure – physical abuse is the first.

Simply plug the unit into the BBC A3000 expansion socket and, using the tool provided, screw the unit to the case with the hex bolts. The system is nearly ready to go. As there is no on/off switch on the hard card box the DC power plug needs to be inserted into the 4-pin 'phone-socket' to switch the unit on. At this point, the fan starts up and runs quietly. The BBC A3000 can then be switched on and as the drive spins the system is ready to be configured.

Configuration is straightforward. By following the manual I managed to configure the system with the internal SCSI drive – to be allocated as SCSI 4 – in about 2 minutes and pressing Control+Break revealed that the system had sprouted a SCSI hard disc.

HCCS supply a floppy disc of utilities with the package which has a formatting program and a speed test. This is not immediately necessary because – as part of their testing procedure – they format the drive before it leaves the factory. But if you need it at any time, it's there. Contrary to popular belief, SCSI is not a 'black magic art' and the system is really quite simple. Each device is allocated one of eight numbers (0 to 7) usually by a set of dip switches or jumpers. Generally, the device used to control other devices is allocated the number 7 slot and is called the host – or host adaptor.

The devices connected to the other numbers are then set so that only one device is allocated to any one number. This means that the host can 'talk' to any of the seven free devices by simply requesting *are you busy?*. If the reply is negative the host can ask for data or tell the device to store the data which follows.

All sorts of peripherals can be connected to an SCSI host including, scanners, tape back-up units, disc drives, CD-Rom drives and read-write optical disc drives holding over 1 Gigabyte of information. Most of these are too pricey for the average home user, but as their popularity grows, expect the price to drop to a more realistic value.

SCSI is fast becoming the standard for the business world and Archimedes users are able to benefit from the advances and availability of good reliable hardware and the flexibility of the Archimedes and its Risc OS operating system.

HardCard
HCCS
HardCard45

Slight tweaks

Using a standard BBC A3000 plus a multisync monitor and a PRES 4Mb upgrade board, I began to put the hard card through its paces.

It appears exactly like an ADFS hard disc and its operation is identical except that instead of ADFS::4 appearing in path names the device is SCSI::4. Some public domain and even commercial programs required slight tweaking, but this is the result of bad programming and not a fault in the SCSIFS. But space is definitely not a problem as 45Mb of storage is usually enough for most users.

One of the most annoying things omitted from the hard card is the presence of a disc active light – it's quite reassuring to have a visual confirmation that your hard disc has just saved your work. The other minus point was that there was no on/off switch on the unit and so you have to disconnect from the mains. Irritating but it made me turn the whole machine off at the mains too which is not a bad thing.

Summing up

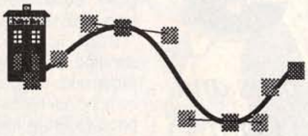
Apart from the very minor niggles, the hard disc works well. You'll also find that the external expansion socket on the back of the hard card box allows the host adaptor to be connected to a further six external SCSI devices. If all you will ever need is fast hard disc storage then you'll go a long way to find better value.

Ace Computing

Einstein=Multi dimensional C²ad

Coming soon from the makers of ***Euclid, Mogul, Splice, Tween*** and ***ArcLight,*** is an addition to the range.

Einstein is a new tool for editing Space-Time, which provides a consistent approach to editing in 2, 3, 4 or even more dimensions.



"Any discussion of design with the Archimedes must include what has virtually become the standard 3D graphics and animation system.

I mean of course the *Euclid/Mogul/Splice* trio of packages from Ace Computing. *Euclid* is a Risc OS compliant, interactive, multi-document, 3D, graphics and animation program which is so easy to get to grips with.

Designs can be put together, rotated in real time, zoomed in and out of and viewed in perspective from any position...

...It is interesting to note that the next set of BBC TV's *Science Challenge* programmes employ *Euclid* graphics."

CHRIS DRAGE Education section
BBC ACORN USER **February 1991**

Ace Computing

PINEAPPLE SOFTWARE

The Pineapple Colour Video Digitiser Big Price Reductions!!!

Since we originally introduced the Pineapple Video Digitiser almost two years ago we have not needed to modify the design of the hardware in any respects. However, the software has been continually improved to the point where the quality and quantity of software supplied is second to none.

Now, because of the large number of sales, we are unable to offer a big price reduction which makes colour digitising available to everybody. Also, because we are so confident that you will find Pineapple Digitiser superior to anything else available, we are happy to offer our Digitisers on 7 days free approval so that you can see for yourself the power of our software.

Some of the features of the Pineapple Digitiser, many of which are still exclusive are as follows:-

- ☆ 16 bit true R G B storage in 256k ram.
- ☆ Sequences of frames of a moving picture can be grabbed and stored in memory. Up to 30 frames in a 1 mb computer, 200 - 300 frames in larger computers!!
- ☆ Full screen area normally viewed on a TV set is grabbed in full.
- ☆ Images may be processed using our own high speed software routines or Acorn's Change FSI software.
- ☆ Quite simply the most powerful and easily used zooming and cropping routines available with any processing package.
- ☆ Two independent multitasking applications supplied, Non-multitasking software allows digitising without windows for adding still images to videos.
- ☆ Our hardware does not use interrupts so other applications run at full speed.
- ☆ Latest software includes built-in print routines. (Existing owners please contact us for a free update).
- ☆ Hard looking synchronising circuits for best results from video recordings.
- ☆ Available in a stand alone box for use with A3000. In this mode it can also be used with 300/400/500 series computers only occupying one expansion slot.
- ☆ Free seven day trial.

A300/400/500 £199.00 A3000/Boxed £235.00

Pineapple PAL Coder

The Pineapple PAL Coder is a stand alone unit which provides a coded video signal which can be recorder onto a VHS recorder or fed to a monitor with coded input.

The unit is inserted in the lead to the R G B monitor and provides an R G B output for the monitor together with a full specification PAL coded output. A second version provides a standard coded output also provides an S-VHS output for improved quality recordings on S-VHS recorders.

Features:-

- ☆ External to computer - no expansion slots used.
- ☆ Complete sync pulse regeneration providing a full CCIR sync waveform for best results on VHS recorders.
- ☆ Selectable to work with 625 interlaced screen modes or 624 line non-interlaced modes.

Standard Version £69.00 S-VHS Version £79.00

BBC PCB Designer

This ever popular Rom based PCB designer is suitable for all BBC micros. It's fast high density 111 scale print routine allows prototype boards to be made directly from a printout, and a 211 scale print may also be used to produce professional quality boards. A second Eprom is optionally available to add a powerful auto-track routing facility to the program. This utilises a 'rats-nest" input routine and allows any component to be 'picked-up' and moved around the board without having to re-specify component interconnections.
The full auto-route facilities are available even on an un-expanded model 'B' computer. An archimedes version is available as a free upgrade to existing BBC owners or at a similar price to the BBC version.

'PCB Auto-route is remarkable. No similar software comes near the price.' Acorn User - August 88.

Manual track routing	**£55.00**
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Access

Satellite Teletext

PRIZE letter

ABOUT a year ago I purchased a teletext adaptor for my BBC which had four teletext channels. I have recently had satellite television installed. After reading the TV Times I discovered that Sky have teletext of their own so I set about enabling my computer to receive these extra channels. To my surprise I succeeded.

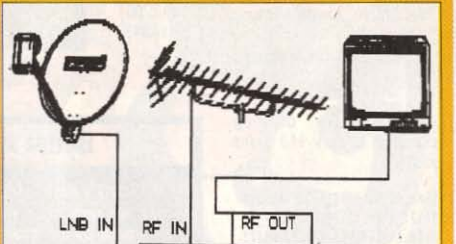
To receive these extra channels all you need to do is connect an aerial from the RF OUT socket on your satellite receiver to the teletext adaptor. If you have an aerial splitter you can watch TV and use the adaptor simultaneously.

Once this has been done switch on your satellite receiver and select the channel you want.

*Next type *TELETEXT and tune your adaptor around channel 36. Once you have completed this you can use your adaptor as if it were receiving Ceefax or Oracle.*

Don't use the computer to change channels, use your satellite receiver. This handy routine let's you access foreign teletext channels as well as English. If a channel has no teletext transmission the clock will stop and continue when a teletext channel is received. Allow a few seconds for the index page to download.

*Save the channel setting by typing *STUNE .* – **Nicholas Close, Barnsley, South Yorkshire.**



Compact complaint

THE quality of the subscription discs for the BBC Compact over the past two or three months seems to have gone downhill. You used to be able to press the Copy key to obtain information of the selection program but that no longer works.

Then, on the November disc, there's some public domain software. I tried the password program. The disc ran but I only got a blank screen and the cursor. I tried to list the program but only got a message about hacking.

This program was of particular interest but I don't see the point in giving public domain software if the recipient can't use it. – **T W Turner, Hull.**

● The menu system on the disc has been rewritten so that the four original files are compressed into one which occupies less space, loads faster – especially from tape – and will work on the Electron.

In the past pressing the Copy key gave you some more information about what was on the disc. However, this took up too much room and had to be left out.

I'm unsure of what you did with the Password Program. This simple little routine showed how to password protect programs. It is accessed by typing in Manager and TWBPD at the relevant prompts.

News from the Veldt

I AM writing on behalf of the recently formed South African Archimedes User Group. The Archimedes has been growing in popularity in education and commerce over the last couple of years, now making inroads into private education and small scale DTP.

The Archimedes' following is growing and gaining momentum. The user group publishes a newsletter, ARC Update, every other month which is distributed along with an accompanying disc. In addition there is a PD library which members have access to and there are future plans to include a bulletin board. – **Mark Henderson, SA ARC User Group, PO Box 1050, Wandsbeck, Natal 3631, South Africa.**

By the bootstraps

I HAVE uncovered a small problem with my !Bootup application featured in the October issue of **The Micro User** – Order of the Boot.

The problem concerns the alterations made to the !Boot file of Impression. It is better if you don't insert the line:

```
Unset Font$Patch.
```

I found this change necessary to be able to reload Impression if it has already been loaded once and then quit. – **Martyn Fox, Windsor.**

Patience has its virtues

I WOULD like to thank Albert Gardner for his marvellous and excellent type-in games like King Albert Patience and the Mah Jongg Patience in the October issue.

These are just as good as commercial games. I saw someone playing Mah Jongg Patience at a Dos-User Group on a PC. I surprised him by telling him I had just the same game on my BBC Micro.

Thank you Mr Gardner for making it possible and I look forward to playing more of his creations. – **Janny Looyenga, Amersfoort, Holland.**

Keep Karma

AS ELITE has now been released, may I ask what has happened to Karma? In the April issue you said that the game was to be released real soon now.

Eight months later, I am beginning to wonder why nothing more has been said on the subject of this eight-disc mega-game.

Has Elite scared off Karma's publishers, or are they going to get on with it and release the program "to really stretch the Archimedes"? I am by no means convinced that at last the Archimedes is capable of having Supergames that aren't conversions from the 8 bit. Please reassure me. – **Dickon M Ward, Oxford.**

● *Real soon now* is a nice way of saying, we'll release it when we're finished, but we don't know when. The programmers are still working on it, and as far as we know there is no large games company marketing it for them so they have to do it all themselves.

The problem we've always noticed is programmers never know when to stop. There is always something that could be better. I should imagine that the earliest a full game is likely to be seen will be Spring

➤

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Writers of the most interesting letters receive a £10 prize.

➤

1992 although there is a rumour that there'll be part of it available this Christmas – but don't hold your breath.

Help wanted

I NOTICED a mention of Cumana's EDFS in a recent news section. I bought this system and two years later converted it with Slogger's SEDFS.

But, for the last year, I have been wanting to convert back, but have lost the chip and all I have now is the utilities disc.

Cumana couldn't help as they are no longer licensed to issue the chip and couldn't send me a software copy of the rom – not surprising I suppose.

I have now come to a dead end. Can anyone either supply me with a software copy or the name and address of where I could get a replacement chip? I am prepared to pay reasonably to get my old DFS running again. – **Deane M. Ingram, Leamington Spa.**

● If anyone can help write to Deane c/o The Micro User.

BBC games please

OVER the past four years of reading The Micro User, *I have enjoyed the reviews. But now the BBC games have been pushed aside by the Archimedes.*

Now all the games are for the Archimedes. Please, please, please cover more BBC games. – **Simon Rees, Andover.**

● We hear the same pleas from Electron users too. But the basic fact is that we can only review the games that are released. The majority of new games these days are for the Archimedes with only Superior, and more recently Audiogenic, holding to the BBC Micro and Electron standards.

BBC bouquets

THE reviews of software packages you publish are not only of use to your readers in helping them decide which products to buy, but are also very useful to us, the producers.

Frank Jukes' recent review of our latest educational program, Farmer Giles II in the September issue has been helpful in drawing to our attention to improvements that could be made. We have taken his comments on board and have modified the program accordingly.

All production copies are now version 2.00. We are also modifying the other program in the series, Farmer Giles, to the same standard.

In line with our usual policy anyone who has an earlier version can obtain an upgrade by sending the original disc and £1 for postage directly to us. – **E. Matthews, Computer Tutorial Services.**

Fire lizards

IN THE February issue there was an article about dragon curves. The program to draw these fractals was nicely written and presented.

Although nowhere near as versatile and user friendly, this dragon curve drawing program is only 113 bytes long:

```
10MODE0:MOVE350,550:FORM=0TO
2^12:_=12:I=3:FOROTO11:_=_-(
0=(M ANDI)MODEI):I=I*2:NEXT:
_=_ AND3:PLOT1,((.=_)-(_=2))
*8((1=_)-(_=3)):NEXT
```

– James Bonfield, Beds.

● Before anyone writes in to say that this can't possibly work, _ is a legal variable name, and a period (.) on its own is zero.

Problem answered

REPLYING to Mike Oliver's query in Problem Solved, September '91, as a model engineer he will probably be aware of Boxford lathes. They also manufacture CNC lathes and milling machines controlled by BBC Bs or Masters using a rom controlling output via the 1MHz port.

These machines are used by a number of schools for production in wood and metal to very close tolerances but they are not cheap. Mike Cook mentions a machine at £1,626 which seems incredibly low priced.

Mike Oliver refers to a machine with three axes and a milling machine to suit his purposes would cost over £6,000. – **Ian Bosman, Leigh-on-Sea.**

Pretty patterns

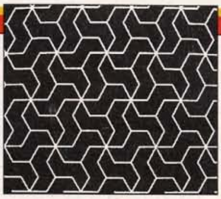
INTRIGUED by Mike Cook's Tiling Pattern program in the September issue, I spent quite a while trying out my own rules. Here are a couple that I liked.

***Isle of Man** is the first and may form a basis for further development by someone. If someone made the right shaped bricks I would like to pave my patio with it.*

***Star and Garter** was inspired by Mike's Islamic Art which I am still trying to sort out.*

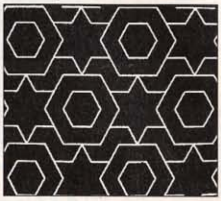
– Peter Baldwin, Woking.

RULES
165
242
341
651
224
413



Isle of Man

RULES
165244
150624
200112
243414
244165
624150
112200
414243



Star and garter

Better Archie games

PERUSING some other magazines recently, I was taken aback by the quality and quantity of the loading screens and screen shots of various Amiga/ST/PC games.

In comparison the Archimedes games have better graphics and sound but the professional finish is sadly lacking.

There are two sides to this coin. The smaller Archimedes houses cannot put the man hours into a game that the big software houses do.

While the big software houses can't see a large enough market to justify the investment. Credit should go to Krisalis in particular for converting some of the better games.

Surely it would be an advantage if US Gold, Electronic Arts and Ocean would let another company convert their titles. The graphics and music would already exist and a good programmer – such as Peter Scott – could then write the Archimedes code.

This would not cost the software houses too much and Archimedes owners would lap up the big titles. Or perhaps someone could invent the Amiga emulator. – Charles Pearce, Grantham.

● Unfortunately the situation is not that straightforward. Part of the problem is that many games are licensed from the arcade giants or from such companies as Lucas Films. Based in the USA they look at the world conversion rights.

This can mean that they ask an enormous fee for the rights to one version which only usually covers the name, or they can decide that they might want to convert it themselves sometime. You have to sell an awful lot of games to offset such an initial outlay.

Cygnus Software Engineering and Krisalis have both converted Amiga version of games to the Archimedes and long may they do so. But they only convert the really good games and there is a lot of dross released too – good graphics does not make up for poor gameplay.

But don't forget that many truly innovative games started on Acorn machines: Elite, Zarch (which became Virus), Conqueror and, more recently, Top Banana.

ALL programs printed in this magazine are exact reproductions of listings taken from running programs which have been thoroughly tested.

However, on the rare occasions when mistakes occur corrections are published as a matter of urgency.

Should you encounter error messages when you type in a program, they will almost certainly be the result of your own typing mistakes.

Unfortunately we cannot answer personal programming queries concerning these mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in the letters pages.

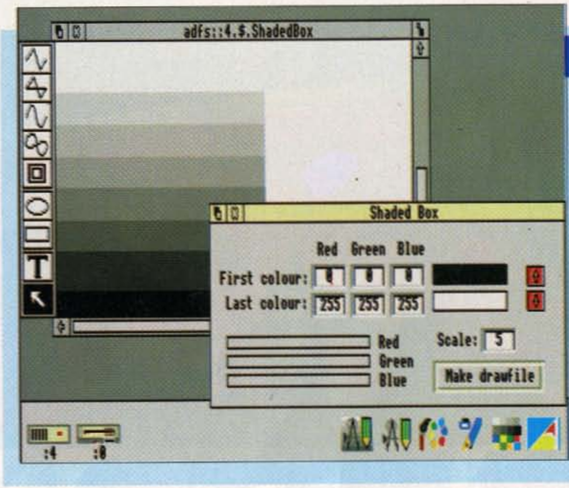
New Concept in Usefulness

Ian Waugh makes his way through a range of value for money utilities

SOMEONE once said that utilities are functions you wish the manufacturer had built into the software in the first place. They fix bugs, add extra features and generally make your computing life a little bit easier.

Design Concept has hit upon the idea of producing a batch of utilities which – so the company hopes – many people may have wished for but which are seemingly so specialised or trivial that they hardly seemed worth anyone's while creating. What's more, they are offered at little more than the cost of the disc.

The range is increasing all the time and updates for some of the programs appeared during the course of the review.



Red Green Blue
First colour: 0 0 0
Last colour: 255 255 255
Scale: 5

Shaded Box

A fully multi-tasking application designed to create a Drawfile containing a rectangle with a colour bleed from one end to the other. And it does, too!

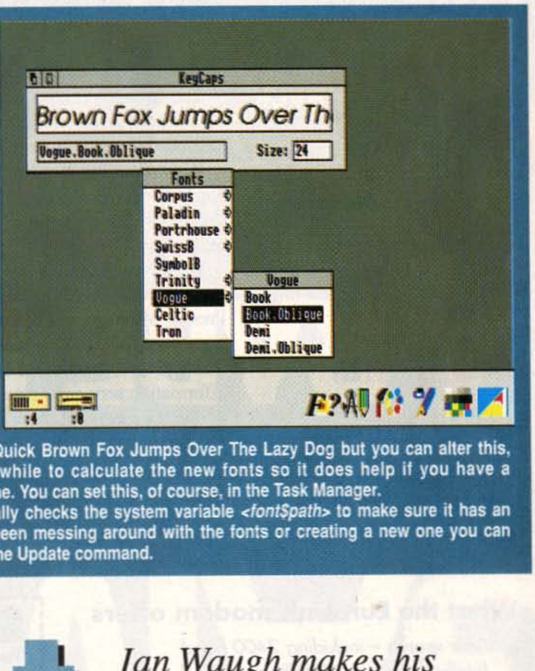
You can define both colours by specifying their RGB content on a scale of 0 to 255. You can also scale the rectangle but this can be done from within Draw. Once it's in Draw you can perform any of the usual Draw functions on it.

It works, it's straightforward to use but I can't think of any application for it offhand. It would, however, make a good background. Perhaps my imagination needs a boost.

Product: Shade
Price:£1.50
Product: KeyCaps
Price: £1.50
Product: Fontlist
Price: £1.50
Product: FreeHand
Price: £2.00
Product: Back 2
Price: £2.00
Product: Muncher
Price: £2.00.

Supplier: Design Concept, 30 South Oswald Road, Edinburgh EH9 2HG.
Tel: 031-668 4518.
Requirements: Risc OS machine

KeyCaps



Brown Fox Jumps Over Th
Vogue.Book.Oblique
Size: 24

Useful and, again, it's a multi-tasking Risc OS application. It can display a sample of anti-aliased fonts in a window on-screen before you include them in a document.

It defaults to Trinity Medium 24 point text but left clicking on the name box or clicking menu anywhere in the window produces a menu of all the installed fonts. Sub-menus show the available styles and you can alter the point size. The text defaults to The Quick Brown Fox Jumps Over The Lazy Dog but you can alter this, too. It can take a short while to calculate the new fonts so it does help if you have a reasonably-size Font Cache. You can set this, of course, in the Task Manager.

The program occasionally checks the system variable *<font$path>* to make sure it has an up-to-date list. If you've been messing around with the fonts or creating a new one you can request an update using the Update command.

DRAMATIC PRICE BREAKTHROUGH!
EuroLink
HIGH SPEED MODEM

There's an electronic Aladdin's Cave of shareware and PD programs . . . just waiting to be explored!

Due to the tremendously high demand, the price of the acclaimed EuroLink modem has been reduced to £149 – a reduction of £80 on the previously advertised price of £229.

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Name .... Signed ....

Address ....

.... Post Code ....

Daytime telephone number in case of queries SS11

My computer is .... *State make and model*

Send to: EuroLink, Europa House, Adlington Park, Macclesfield SK10 4NP.

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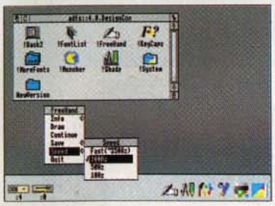
FreeHand


adfs::4.$.DesignCon
!Back2
!FontList
!FreeHand
!KeyCaps
!MoreFonts
!Muncher
!Shade
!System
NewVersion
FreeHand
Info
Draw
Continue
Save
View
Quit
Speed
:4
:0

The instructions describe FreeHand as a sort of patch for Draw's inability to let you construct freehand drawings. Clicking menu on the icon on the menu bar produces a menu whose main commands are Draw, Continue, Save, View and Speed.

In Draw mode you're presented with an inverted screen which you can draw on with the mouse, white on black. The Select button draws and the Adjust button wipes out the drawing by back-tracing from the most recently-drawn point.

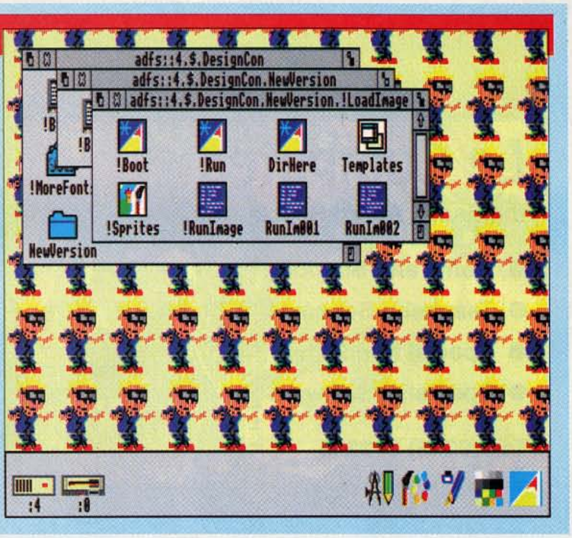
Clicking Menu takes you back to the desktop but holds the drawing in memory. Continue lets you carry on from where you left off. View lets you view the drawing in normal Draw fashion, black on white.

The Speed option selects the rate at which the mouse movements are recorded. It's rather like setting the sampling rate on a sampler. The higher speed is more accurate but uses more memory. Unless you're whizzing around the screen like a maniac it seems to make little difference to the resolution.

If you are constructing a complex drawing you may well fill the allotted memory but you can increase this in the Task Manager. The draw screen shows how much memory you have used.

You can load a saved Drawfile back into the program for further editing but don't try to load a normal Drawfile or the computer will lock up.

back 2


adfs::4.$.DesignCon
adfs::4.$.DesignCon.NewVersion
adfs::4.$.DesignCon.NewVersion.!LoadImage
!Boot
!Run
DirHere
Templates
!Sprites
!RunImage
RunIm001
RunIm002
!MoreFont
NewVersion
:4
:0

The most useful but also the most complex of the programs. But where most of the other programs' Help files include instructions on how to use them, Back's Helpfile merely lists recent updates. Ah well.

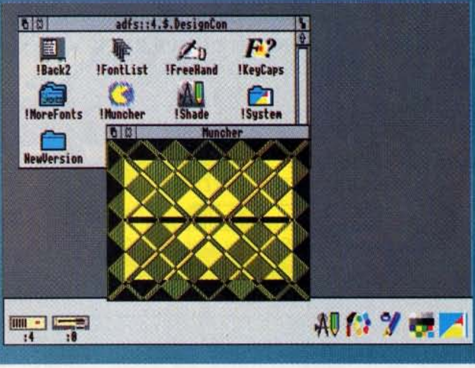
It can be used to execute any command, including applications and can also plot a sprite across the background. This is neat if you're tired of Archie's plain grey background. Unless they are well-designed, however, I reckon most sprites will be even more tiring on the eye.

Double-clicking Menu calls up a Background menu offering Info, Sprites, Clear and Quit commands. However, double clicking on some of these options caused the computer to lock up. Tut, tut!

Muncher

Muncher opens a window which produces a constantly changing pattern – by the process of XORing moving lines with the background. It's interesting. If you move the pointer on to the pattern the Muncher window comes to the front. Moving it off reinstates the previous window positions. Closing the window with Shift held down will make the directory from which it came appear.

One suggested use is to prevent screen burn. But the window cannot be sized so its usefulness in that respect is limited. What is really needed is an automatic screen display to flip in after a predetermined time without any keyboard or mouse activity – say five minutes. Add a range of selectable screens – fish tanks, comets, stars and so on – and you'll have a very marketable program. See my review of Twilight on Page 113.

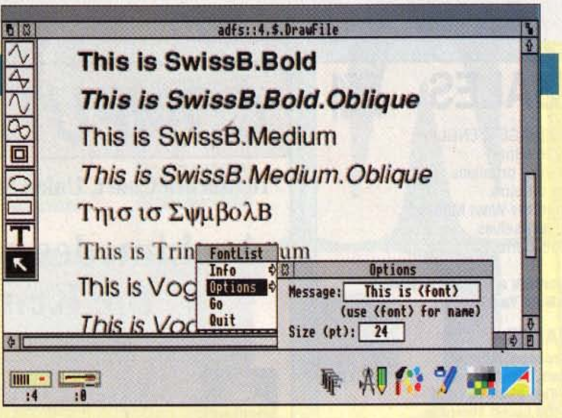

adfs::4.$.DesignCon
!Back2
!FontList
!FreeHand
!KeyCaps
!MoreFonts
!Muncher
!Shade
!System
NewVersion
Muncher
:4
:0

Fontlist

Another useful program for font-conscious users. It lists all the available fonts in a Drawfile from where it can be printed. You can specify the message to accompany the fonts.

It defaults to "This is" followed by the name of the font. You can also specify the point size. This defaults to 24 point too.

It's quite likely that the collection of fonts will be larger than a page. The instructions explain how to print them all. Nice.


adfs::4.$.DrawFile
FontList
Info
Options
Go
Quit
Options
:4
:0

This is SwissB.Bold

This is SwissB.Bold.Oblique

This is SwissB.Medium

This is SwissB.Medium.Oblique

Τηισ ισ ΣψμβολΒ

This is Trin um

This is Vog

This is Voc

Message: This is <font>

(use <font> for name)

Size (pt): 24

Summing up

Design Concept have produced a range of utilities which many people will find useful at prices which can only be described as a bargain. However, it is rather a shame that some bugs remain, particularly ones which cause the computer to lock up. I would have thought such 'single-purpose' programs could easily be bug free.

Further development of some of the programs – such as Muncher – could result in some genuinely and universally useful utilities which, dare I suggest, could be sold at several times the asking price of these utilities.

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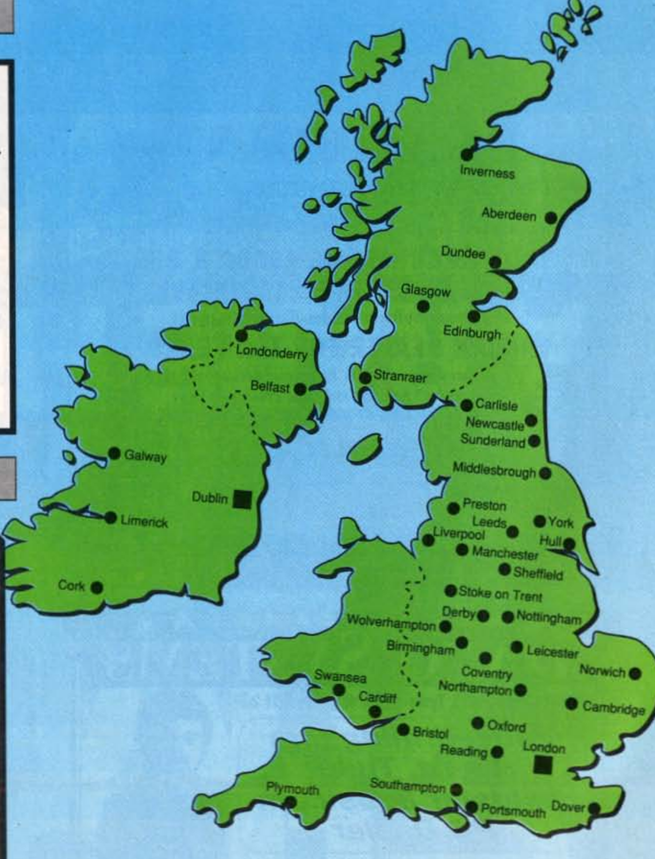
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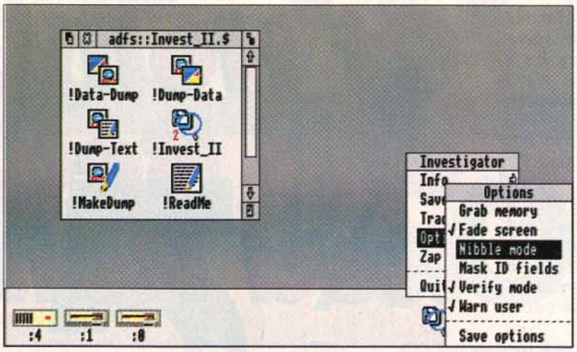
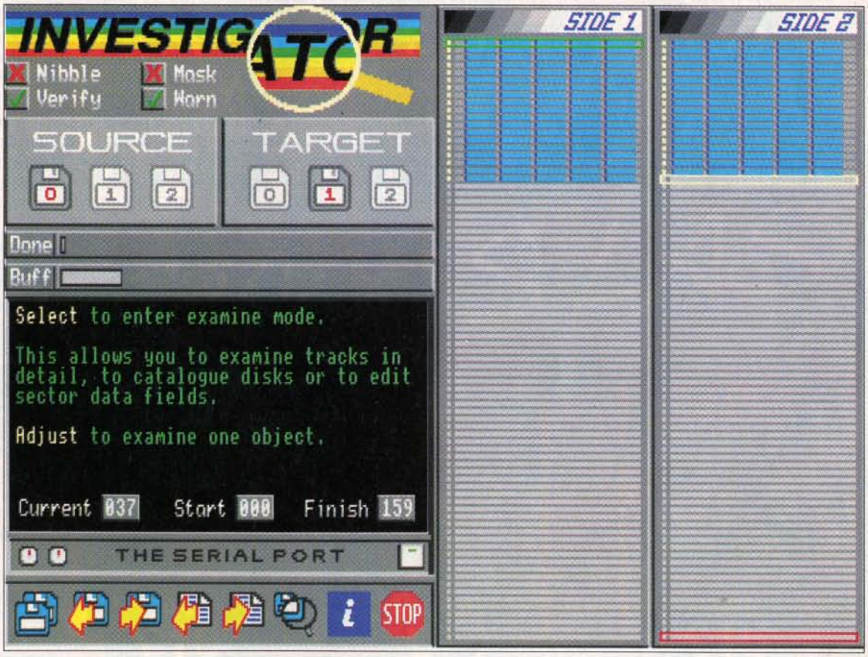
DISCovery

Terry Blunt finds out exactly what's on those tracks





Select to enter examine mode.

This allows you to examine tracks in detail, to catalogue disks or to edit sector data fields.

Adjust to examine one object.

Current 037 Start 000 Finish 159

Product: Investigator
Price: £27.95 inc. VAT
Supplier: The Serial Port, 30-33 South Street, Chichester, West Sussex, PO19 1EL
Tel: 0243 531194

THE new Investigator utility from The Serial Port is intended as general purpose disc manager. It can examine the format as well as the data in any sector of a disc, and can operate on a wide range of different formats, including the old BBC DFS and Dos.

The software consists of five related applications, all of which are described in considerable detail in the 38 page user guide.

A useful feature of the manual is the way each section begins with a couple of paragraphs with minimal information for getting started.

The design concept is that it should be able to examine, read and write any disc format that the Archimedes disc controller and the drives themselves are capable of handling – this is known as the physical format.

Although simple in principle, you can lay out a disc within this framework in a great variety of ways and many copy protection techniques work by writing *in the cracks* to try and prevent you working out the, so called, logical format.

The original Investigator grabbed the whole machine, whereas version 2 starts up from the DeskTop in the normal way and all the applications can be loaded on to the icon bar.

However, the main Invest II application is not multi-tasking. The Serial Port say that one reason for this is to maintain familiarity with the older version. That sounds rather like an excuse to me.

Mind you, some operations are so processor intensive that multi-tasking becomes impractical anyway. Indeed, the hourglass display slows dramatically at times. Nevertheless, Invest II does provide a clean return to the DeskTop when you have finished.

The onscreen layout is effective but a bit awkward, particularly when compared with normal DeskTop applications. For example, I would have liked a clearer exit icon.

Investigator has the ability to create compressed dumps of a disc. This means that all the data, including format details, can be copied to another disc, or even a hard disc, and later restored complete.

In theory, you should be able to archive, say, a complete Dos format disc on a normal ADFS format floppy.

In practice there are difficulties with some formats and some protected software. In particular, I had problems trying to copy Atari discs. To be fair, I was trying to copy discs originally written on an STE, a machine notorious for incompatibility *features*. The Serial Port are working on these problems as they come across them.

It is probable that you could use Investigator to design your own protected disc formats, but to do so you would need to understand the workings of disc systems in very considerable detail. The manual gives a very informative insight into this. An understated but, in my view most important use to which Investigator can be put, is that of recovering data from damaged discs. At the time I got my review copy I wanted to pick up quite a long text file from an old DFS format disc.

To my surprise I discovered that it had become corrupted while in storage. My usual DFS reader wouldn't touch it, but using Invest II and Dump-Data together, I was able to recover more than 80 per cent of the disc contents with comparative ease.

Summing up

Investigator combines archiving with sophisticated copying and recovery.

It falls a little sort of its objectives, but nevertheless represents real value for money if you need to handle discs for a wide range of micros.

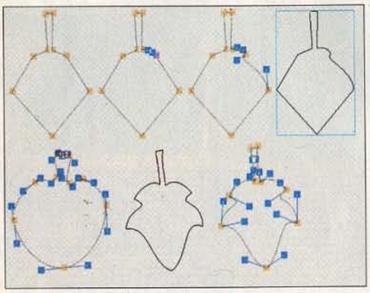
Of Holly, Ivy and Red, Red Reindeer

I THOUGHT an interesting exercise for this month would be to design some Christmas cards using DrawPlus. It's a public domain program with more features than !Draw but is basically the same. Subscribers will find a copy on this month's Archimedes subscription disc and anyone can obtain a copy by contacting a PD library.

Although Christmas cards may look good in colour they can look very sharp in black and white too. If you can get a single laser copy of a black and white version of your Christmas card you can photocopy it on to card. If you don't fancy black and white you can always colour them using felt pens or coloured ink.

The theme for this card will be the carol *The Holly and the Ivy*. The card decoration will be based around holly and ivy leaves and the text of two of the lines of the carol will fill the centre.

This combination of text and border looks good but I thought it needed something a bit special to liven up the text. So we are going to design our own decorated initial such as you might see on illuminated manuscripts.



Stage by stage leaf construction

On the starting blocks

So how do you begin to draw a holly or ivy leaf? You could tape one to the computer screen and draw round its outline or you can start with a rough leaf shape and add extra sections pulling the leaf details into shape as you go.

Turn off the gridlock as you don't need to accurately align anything at this stage. To draw an ivy leaf select Create Line and draw a rough leaf shape with five points round the edge plus a stem. If you can't find an ivy leaf find a picture and work from that. Your first leaf might look more like a trowel but by turning successive lines into curves you can make it much more natural looking.

To change a line into a curve you need to select the Edit option and press the Adjust button – highlighting the control points. Press Adjust on the control point at the end of the line you want to change to a curve and it will turn purple. Two extra blue control points will appear on the line allowing you to drag them to produce the curve you need. I've exaggerated the first two curves to show what I mean. To see what the curves look like press Select to turn off the control points and display the outline. Continue round the leaf outline until all the lines are changed to curves. You might be tempted to draw the leaf outline with curved lines – do and you'll end up with something like an apple.

At this stage the leaf was looking a bit too curved so I added extra points to give a definite sharp incision between the sections of leaf. Inserting extra control points is done by pressing Adjust on the control point after the line on which you want an extra one and then selecting the Insert Point option from the Edit Menu.

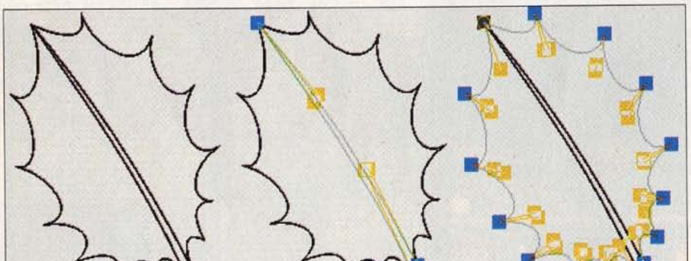
This adds control points in an already crowded space so use the Enlarge option from the Settings Menu to double the size of the leaf so you can see what you're doing. The holly leaf is somewhat easier to draw.

Moving away from basics

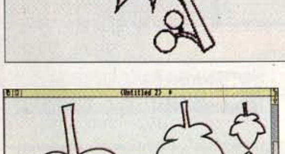
Once the leaves are drawn you might want to thicken the outline. You can do this by selecting the leaf and using the Pathstyle Menu to adjust the thickness to perhaps 1 point.

You can then copy the leaf using Control+C or the Copy option and enlarge it by 0.5 – which reduces it to half-size – and repeat the procedure to reduce it to quarter size. If you then copy three quarter size leaves, line them up and reverse alternate leaves you start to get some idea of what a border might look like.

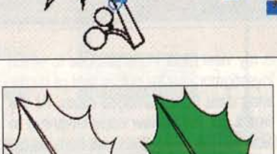
So that's the leaves, what about the illuminated or decorated letter? Well, this needn't be very elaborate and may consist of a capital letter, a few decorative vines or swirly bits and a couple of leaves which you've just designed. The important thing to remember when working with Draw or DrawPlus is that you can produce very elaborate designs on screen which look absolutely wonderful



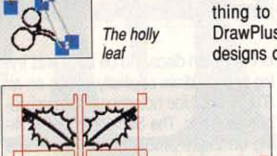
The holly leaf



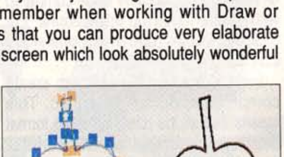
The ivy at various sizes



Colouring the berries



Doubling the leaves



Final version of the ivy

Steve Bruntlett introducesyou to some of the seasonal aspects of !DrawPlus

but when they're printed out on a small scale you can't see 90 per cent of the detail.

If you are printing out your card at A5 size the decorative letter will perhaps be about the size of a large postage stamp. Do use the zoom option to see how much, or rather how little, detail you actually need.

Start by creating the letter at the size you need. A letter the size of a small postage stamp would be about an inch high. So by selecting Create Text and going to the Pathstyle Menu you might expect to be able to create a letter to exactly that measurement. But all the choices are defined in points. Not to worry, points relate directly to inches, 72 point being exactly an inch.

Picking a font

So what typeface or font do you use? It depends what fonts you have access to but for simplicity's sake we'll use Trinity Bold. Select Trinity from the Font Name option under the Text Style Menu and then select Bold from the Font Style option.

In this respect DrawPlus is more advanced that Draw which only gives you the medium font. You can turn the letter into a graphic object by selecting it and using the Text to Path option available under the Special menu. This in turn allows you to play around with the control points of the letter to change its appearance.

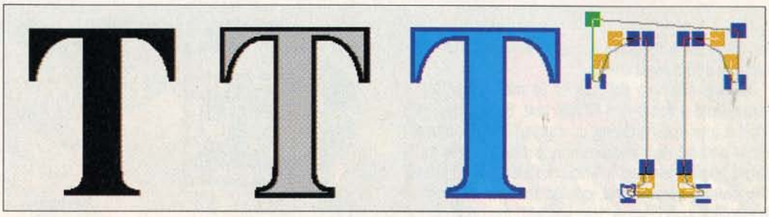
Firstly change the fill colour to light blue and the line colour and thickness to 1 point dark blue. This gives a very thin top to the letter, so move the control points up to thicken the crossbar of the T. Select the top two control points in turn and used the up cursor key to adjust the position, pressing Select to change from Edit back to the displayed letter.

So what's next?

Some kind of ivy plant draped over and around the letter with a border to highlight the decorated letter would be effective. Draw a swirl which might drape around the letter and fill in the blank bits and maybe add an offshoot to fill the bottom right corner. These two sections can be joined together and given a line thickness of say 1 point just to see what you're doing.

Move the swirl over the letter to see what it looks like. If you want the swirl behind simply select it and use the Back option from the Select Menu. I suggest you use Zoom to enlarge your view of the letter at this stage to put on the ivy leaves.

To drape the letter with ivy leaves simply drag the ivy leaf file icon from your disc directory and drop in somewhere near the decorated letter. You may not be able to see your leaf at this stage so use Zoom to reduce your page size so that you can see it all on screen at once. You should then be able to see your leaves and it's a simple matter to move them next to the decorated letter.


Constructing the T

You'll probably find that they're much too big so reduce them to whatever size you prefer using the Scale option under the Arrange Menu. You'll likely need to reduce the line width to 1/2 point too. The line width stays the same no matter to what size your graphic is reduced or enlarged.

You can then start positioning the leaves on the stalk to look as plant-like as you can manage. To do this you should rotate some of the leaves to make them look more natural, so copy the original a few times and rotate these using the Rotate/Skew option under the Arrange menu. You can also try Skewing the leaves by varying degrees in different directions for variety.

Customising your design

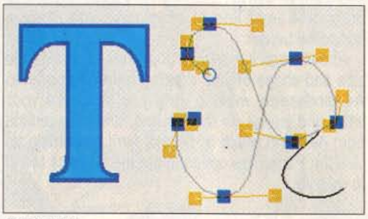
Try creating a dozen variations on the leaf and changing the fill colour in the process. Use the cursor keys for fine positioning control. Remember that the easiest way to change the scale and proportion of a selected individual leaf is to drag one of its ears with the Select button and the orientation by dragging with the Adjust button.

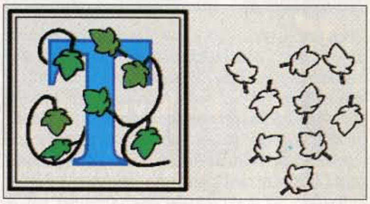
Don't put too many leaves on the stalks and do keep reducing the viewing size to see what it looks like at postage stamp size. If you can see some of the letter outline through the leaves, select a leaf at a time and change the fill colour to white for the black and white version and to light green for the colour version.

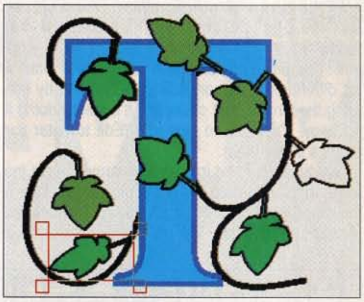
Whatever you do, group the components of your letter before you attempt to move it, otherwise your leaves could end up all over the place. Simply press Select somewhere outside the group of objects and drag the outline box until they're all enclosed and let go. You should now see lots of little red boxes which can be made into a single unit using the Group option under the Select Menu.

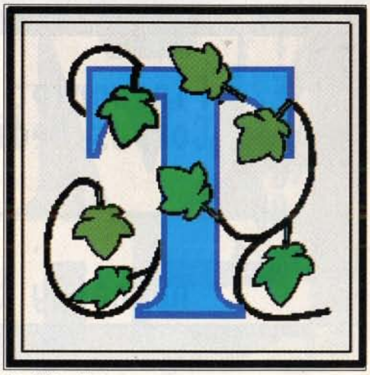
I decided to put a double outline box round my decorated initial but you could use an oval outline

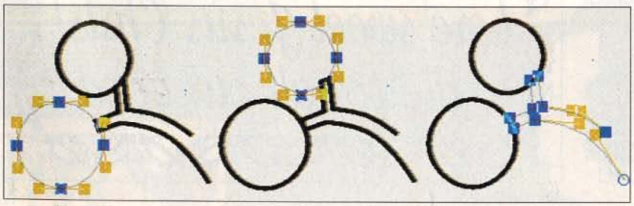
➤


T and swirl


Some duplicated leaves


Skewing the leaves for effect


The finished letter


Holly berries in construction

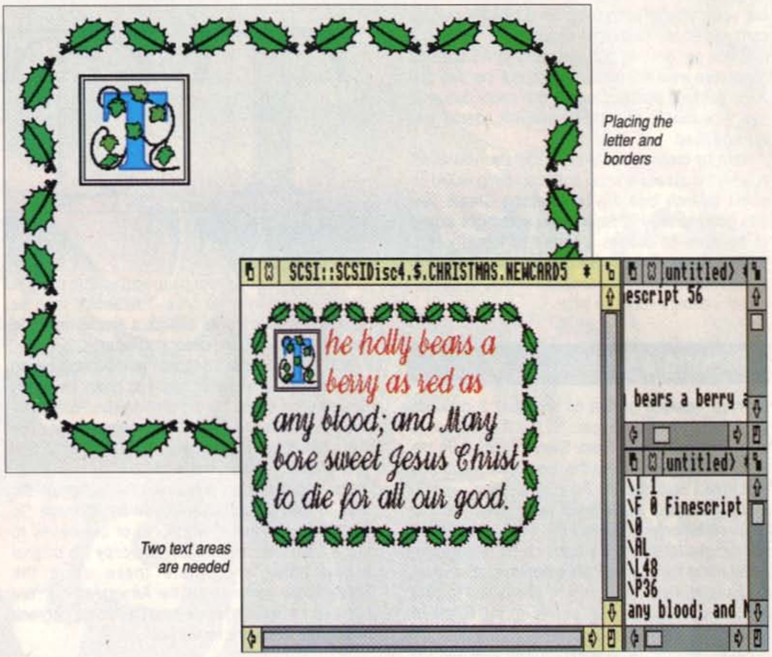
➤

or construct a rounded corner box using alternate straight and curved lines.

All we need to do now is to make the holly leaves into a frame and fill with text. Select one and load it into your drawing containing the decorated letter and move it into position. I rotated mine to a slight angle, selected a Gridlock setting of 20 times the default screen grid, copied the leaf, flipped it horizontally and moved into line with the original.

From then on it's a simple matter of selecting this pair of leaves, copying and adding them to produce a long line of alternating leaves for a horizontal border.

At this stage it may be a good idea to change the size and shape of your drawing from A4 portrait to A4 landscape, making sure you still have your letter and leaves on the drawing, and then reduce from A4 to A5 which is the size we'll be printing at. Use the Page Size option under the Settings Menu to do this.



```
SCSI::SCSIDisc4.$.CHRISTMAS.NEWCARDS5
```

he holly bears a
berry as red as
any blood; and Mary
bore sweet Jesus Christ
to die for all our good.

```
untitled>
escript 56

 bears a berry
```

```
untitled>
\! 1
\F 0 Finescript
\0
\AL
\L48
\P36
any blood; and M
```

Placing the letter and borders

Two text areas are needed

Finishing touches

Once you've produced a row of leaves, copy, invert and move them to the top of the screen in line with the bottom row. Copy this row, ungroup the strip of leaves, delete two of them, regroup the rest, rotate them through 90 degrees and move them to the left hand side. Copy this set and flip horizontally and move into position on the right hand side forming your Christmas card frame with the decorated letter in the top left hand corner. Keep Gridlock set to make lining up easier.

All you have to do now is add text. You could use an Olde English font if you can find one but something that looks handwritten seems to work well – just using the italic form of Trinity will make a big difference. You can enter the text line by line using the Create Text option but it's messy doing it that way. It's better to type into !Edit to enter the text in a single block.

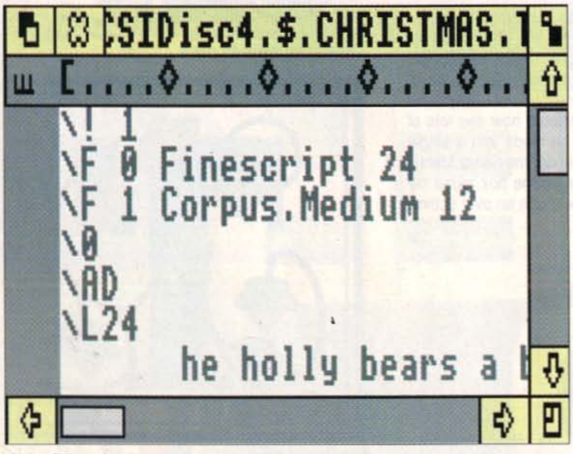
Just type your text into an Edit frame, select the Save option and drag it on to your drawing. Ignore the message about the text not having the standard header and click OK. The text will appear on your drawing in a red select box which can be reshaped. Use the Save Text Area option and drag the text back into Edit where it will now have a header added to it.

Edit the line which has details of the font and size to those you wish to use. Remember to change the line spacing as well. Adding a few spaces before 'he' to allow for the decorated letter worked fine. I tried adding them before 'berry' to allow for the decorated letter block but I couldn't get it to work so I resorted to two text blocks which worked just as well though with no spaces before 'he'.

This seems to be a sensible way of dealing with irregularly shaped text panels. You can keep changing the Edit file as often as you like in terms of altering text size, font and spacing and keep dropping it into the same box in your drawing until it fits properly.

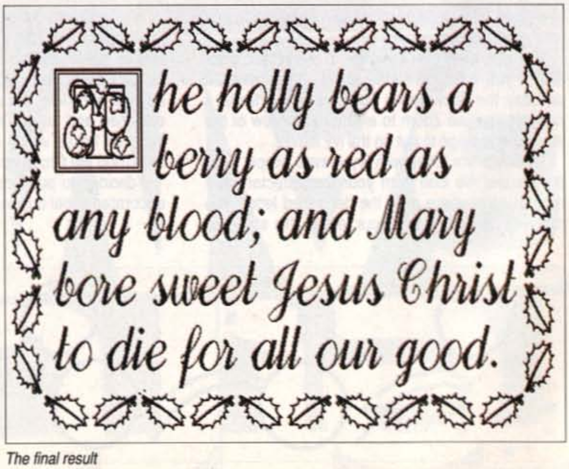
Note that DrawPlus will only access fonts which were available before you loaded it. If you don't want the text justified to both margins, change AD to AL which will left justify the text. It's worth having a look at your User Guide to see what other options there are when using Edit for this kind of work.

Now that you've created a few leaves, a decorated capital letter and produced a frame, get some cards printed, even if you have to colour them by hand, have a go at some party invitations and have a good Christmas.



```
CSIDisc4.$.CHRISTMAS.1
\! 1
\F 0 Finescript 24
\F 1 Corpus.Medium 12
\0
\AD
\L24
        he holly bears a b
```

Using Edit to alter the text



he holly bears a
berry as red as
any blood; and Mary
bore sweet Jesus Christ
to die for all our good.

The final result

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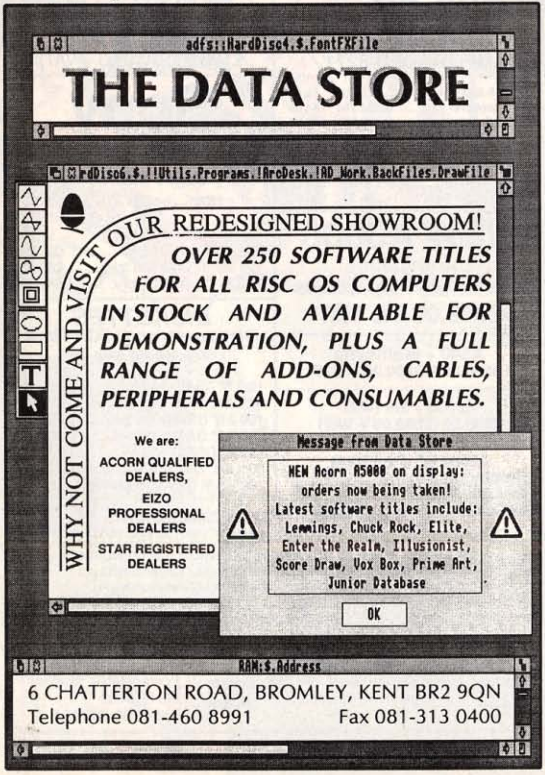

adfs::HardDisc4.$.FontFXFile
rdDisc6.$.!!Utils.Programs.!ArcDesk.!AD_Work.BackFiles.DrawFile
Message from Data Store
OK
RAM:$.Address

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Hard News

Geoff Gallacher assesses the pros and cons of the HCCS A3000 Hard Card 45

HCCS's latest release is a piece of expansion hardware allowing you to add a hard disc drive to the BBC A3000 without the large metal box holding the hard drive and power supply.

This involves fitting the hard disc drive inside a podule box and using an external power supply to provide the extra current required by the hard drive. The BBC A3000 doesn't have the spare capacity in its internal power unit to handle anything but the smallest – and therefore relatively expensive – hard disc drive. This is especially so if other options such as memory expansion boards or external expansion cards are fitted to the machine.

The BBC A3000 only has a 5 volt power unit fitted and most of the less expensive drive options such as ST506 and SCSI– Small Computer Systems Interface – require 12 volts to spin the motor which rotates the discs.

HCCS have solved this problem by providing the hard card with its own external power supply unit producing the voltages and current required to run the disc drive without loading the BBC A3000 power supply.

The hard card is basically an SCSI controller and a 45Mb hard disc squeezed into a podule box. The box is slightly wider than the standard podule box such as the ones produced by PRES, but this is for a good reason. On the right hand side there is a fan which ensures that the hard drive doesn't overheat. Incidentally, overheating is the second most common cause of hard-drive failure – physical abuse is the first.

Simply plug the unit into the BBC A3000 expansion socket and, using the tool provided, screw the unit to the case with the hex bolts. The system is nearly ready to go. As there is no on/off switch on the hard card box the DC power plug needs to be inserted into the 4-pin 'phone-socket' to switch the unit on. At this point, the fan starts up and runs quietly. The BBC A3000 can then be switched on and as the drive spins the system is ready to be configured.

Configuration is straightforward. By following the manual I managed to configure the system with the internal SCSI drive – to be allocated as SCSI 4 – in about 2 minutes and pressing Control+Break revealed that the system had sprouted a SCSI hard disc.

HCCS supply a floppy disc of utilities with the package which has a formatting program and a speed test. This is not immediately necessary because – as part of their testing procedure – they format the drive before it leaves the factory. But if you need it at any time, it's there. Contrary to popular belief, SCSI is not a 'black magic art' and the system is really quite simple. Each device is allocated one of eight numbers (0 to 7) usually by a set of dip switches or jumpers. Generally, the device used to control other devices is allocated the number 7 slot and is called the host – or host adaptor.

The devices connected to the other numbers are then set so that only one device is allocated to any one number. This means that the host can 'talk' to any of the seven free devices by simply requesting *are you busy?*. If the reply is negative the host can ask for data or tell the device to store the data which follows.

All sorts of peripherals can be connected to an SCSI host including, scanners, tape back-up units, disc drives, CD-Rom drives and read-write optical disc drives holding over 1 Gigabyte of information. Most of these are too pricey for the average home user, but as their popularity grows, expect the price to drop to a more realistic value.

SCSI is fast becoming the standard for the business world and Archimedes users are able to benefit from the advances and availability of good reliable hardware and the flexibility of the Archimedes and its Risc OS operating system.

Slight tweaks

Using a standard BBC A3000 plus a multisync monitor and a PRES 4Mb upgrade board, I began to put the hard card through its paces.

It appears exactly like an ADFS hard disc and its operation is identical except that instead of ADFS::4 appearing in path names the device is SCSI::4. Some public domain and even commercial programs required slight tweaking, but this is the result of bad programming and not a fault in the SCSIFS. But space is definitely not a problem as 45Mb of storage is usually enough for most users.

One of the most annoying things omitted from the hard card is the presence of a disc active light – it's quite reassuring to have a visual confirmation that your hard disc has just saved your work. The other minus point was that there was no on/off switch on the unit and so you have to disconnect from the mains. Irritating but it made me turn the whole machine off at the mains too which is not a bad thing.

Summing up

Apart from the very minor niggles, the hard disc works well. You'll also find that the external expansion socket on the back of the hard card box allows the host adaptor to be connected to a further six external SCSI devices. If all you will ever need is fast hard disc storage then you'll go a long way to find better value.

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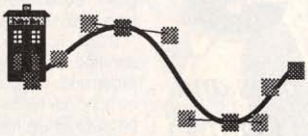

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...It is interesting to note that the next set of BBC TV's *Science Challenge* programmes employ *Euclid* graphics."

CHRIS DRAGE Education section
BBC ACORN USER February 1991

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The full auto-route facilities are available even on an un-expanded model 'B' computer. An archimedes version is available as a free upgrade to existing BBC owners or at a similar price to the BBC version.

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Satellite Teletext

PRIZE letter

ABOUT a year ago I purchased a teletext adaptor for my BBC which had four teletext channels. I have recently had satellite television installed. After reading the TV Times I discovered that Sky have teletext of their own so I set about enabling my computer to receive these extra channels. To my surprise I succeeded.

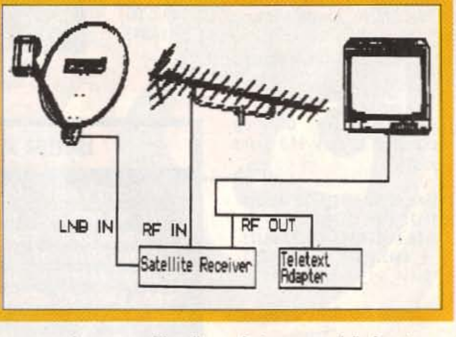
To receive these extra channels all you need to do is connect an aerial from the RF OUT socket on your satellite receiver to the teletext adaptor. If you have an aerial splitter you can watch TV and use the adaptor simultaneously.

Once this has been done switch on your satellite receiver and select the channel you want.

*Next type *TELETEXT and tune your adaptor around channel 36. Once you have completed this you can use your adaptor as if it were receiving Ceefax or Oracle.*

Don't use the computer to change channels, use your satellite receiver. This handy routine let's you access foreign teletext channels as well as English. If a channel has no teletext transmission the clock will stop and continue when a teletext channel is received. Allow a few seconds for the index page to download.

*Save the channel setting by typing *STUNE .* – **Nicholas Close, Barnsley, South Yorkshire.**



Compact complaint

THE quality of the subscription discs for the BBC Compact over the past two or three months seems to have gone downhill. You used to be able to press the Copy key to obtain information of the selection program but that no longer works.

Then, on the November disc, there's some public domain software. I tried the password program. The disc ran but I only got a blank screen and the cursor. I tried to list the program but only got a message about hacking.

This program was of particular interest but I don't see the point in giving public domain software if the recipient can't use it. – **T W Turner, Hull.**

● The menu system on the disc has been rewritten so that the four original files are compressed into one which occupies less space, loads faster – especially from tape – and will work on the Electron.

In the past pressing the Copy key gave you some more information about what was on the disc. However, this took up too much room and had to be left out.

I'm unsure of what you did with the Password Program. This simple little routine showed how to password protect programs. It is accessed by typing in Manager and TWBPD at the relevant prompts.

News from the Veldt

I AM writing on behalf of the recently formed South African Archimedes User Group. The Archimedes has been growing in popularity in education and commerce over the last couple of years, now making inroads into private education and small scale DTP.

The Archimedes' following is growing and gaining momentum. The user group publishes a newsletter, ARC Update, every other month which is distributed along with an accompanying disc. In addition there is a PD library which members have access to and there are future plans to include a bulletin board. – **Mark Henderson, SA ARC User Group, PO Box 1050, Wandsbeck, Natal 3631, South Africa.**

By the bootstraps

I HAVE uncovered a small problem with my !Bootup application featured in the October issue of **The Micro User** – Order of the Boot.

The problem concerns the alterations made to the !Boot file of Impression. It is better if you don't insert the line:

```
Unset Font$Patch.
```

I found this change necessary to be able to reload Impression if it has already been loaded once and then quit. – **Martyn Fox, Windsor.**

Patience has its virtues

I WOULD like to thank Albert Gardner for his marvellous and excellent type-in games like King Albert Patience and the Mah Jongg Patience in the October issue.

These are just as good as commercial games. I saw someone playing Mah Jongg Patience at a Dos-User Group on a PC. I surprised him by telling him I had just the same game on my BBC Micro.

Thank you Mr Gardner for making it possible and I look forward to playing more of his creations. – **Janny Looyenga, Amersfoort, Holland.**

Keep Karma

AS ELITE has now been released, may I ask what has happened to Karma? In the April issue you said that the game was to be released real soon now.

Eight months later, I am beginning to wonder why nothing more has been said on the subject of this eight-disc mega-game.

Has Elite scared off Karma's publishers, or are they going to get on with it and release the program "to really stretch the Archimedes"? I am by no means convinced that at last the Archimedes is capable of having Supergames that aren't conversions from the 8 bit. Please reassure me. – **Dickon M Ward, Oxford.**

● *Real soon now* is a nice way of saying, we'll release it when we're finished, but we don't know when. The programmers are still working on it, and as far as we know there is no large games company marketing it for them so they have to do it all themselves.

The problem we've always noticed is programmers never know when to stop. There is always something that could be better. I should imagine that the earliest a full game is likely to be seen will be Spring

➤

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➤

1992 although there is a rumour that there'll be part of it available this Christmas – but don't hold your breath.

Help wanted

I NOTICED a mention of Cumana's EDFS in a recent news section. I bought this system and two years later converted it with Slogger's SEDFS.

But, for the last year, I have been wanting to convert back, but have lost the chip and all I have now is the utilities disc.

Cumana couldn't help as they are no longer licensed to issue the chip and couldn't send me a software copy of the rom – not surprising I suppose.

I have now come to a dead end. Can anyone either supply me with a software copy or the name and address of where I could get a replacement chip? I am prepared to pay reasonably to get my old DFS running again. – **Deane M. Ingram, Leamington Spa.**

● If anyone can help write to Deane c/o The Micro User.

BBC games please

OVER the past four years of reading The Micro User, *I have enjoyed the reviews. But now the BBC games have been pushed aside by the Archimedes.*

Now all the games are for the Archimedes. Please, please, please cover more BBC games. – **Simon Rees, Andover.**

● We hear the same pleas from Electron users too. But the basic fact is that we can only review the games that are released. The majority of new games these days are for the Archimedes with only Superior, and more recently Audiogenic, holding to the BBC Micro and Electron standards.

BBC bouquets

THE reviews of software packages you publish are not only of use to your readers in helping them decide which products to buy, but are also very useful to us, the producers.

Frank Jukes' recent review of our latest educational program, Farmer Giles II in the September issue has been helpful in drawing to our attention to improvements that could be made. We have taken his comments on board and have modified the program accordingly.

All production copies are now version 2.00. We are also modifying the other program in the series, Farmer Giles, to the same standard.

In line with our usual policy anyone who has an earlier version can obtain an upgrade by sending the original disc and £1 for postage directly to us. – **E. Matthews, Computer Tutorial Services.**

Pretty patterns

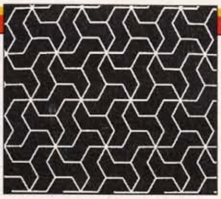
INTRIGUED by Mike Cook's Tiling Pattern program in the September issue, I spent quite a while trying out my own rules. Here are a couple that I liked.

Isle of Man *is the first and may form a basis for further development by someone. If someone made the right shaped bricks I would like to pave my patio with it.*

Star and Garter *was inspired by Mike's Islamic Art which I am still trying to sort out.*

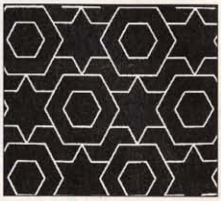
– Peter Baldwin, Woking.

RULES
165
242
341
651
224
413



Isle of Man

RULES
165244
150624
200112
243414
244165
624150
112200
414243



Star and garter

Fire lizards

IN THE February issue there was an article about dragon curves. The program to draw these fractals was nicely written and presented.

Although nowhere near as versatile and user friendly, this dragon curve drawing program is only 113 bytes long:

```
10MODE0:MOVE350,550:FORM=0TO
2^12:_=12:I=3:FOROTO11:_=_-(
0=(M ANDI)MODEI):I=I*2:NEXT:
_=_ AND3:PLOT1,((.=_)-(_=2))
*8((1=_)-(_=3)):NEXT
```

– James Bonfield, Beds.

● Before anyone writes in to say that this can't possibly work, _ is a legal variable name, and a period (.) on its own is zero.

Problem answered

REPLYING to Mike Oliver's query in Problem Solved, September '91, as a model engineer he will probably be aware of Boxford lathes. They also manufacture CNC lathes and milling machines controlled by BBC Bs or Masters using a rom controlling output via the 1MHz port.

These machines are used by a number of schools for production in wood and metal to very close tolerances but they are not cheap. Mike Cook mentions a machine at £1,626 which seems incredibly low priced.

Mike Oliver refers to a machine with three axes and a milling machine to suit his purposes would cost over £6,000. – **Ian Bosman, Leigh-on-Sea.**

Better Archie games

PERUSING some other magazines recently, I was taken aback by the quality and quantity of the loading screens and screen shots of various Amiga/ST/PC games.

In comparison the Archimedes games have better graphics and sound but the professional finish is sadly lacking.

There are two sides to this coin. The smaller Archimedes houses cannot put the man hours into a game that the big software houses do.

While the big software houses can't see a large enough market to justify the investment. Credit should go to Krisalis in particular for converting some of the better games.

Surely it would be an advantage if US Gold, Electronic Arts and Ocean would let another company convert their titles. The graphics and music would already exist and a good programmer – such as Peter Scott – could then write the Archimedes code.

This would not cost the software houses too much and Archimedes owners would lap up the big titles. Or perhaps someone could invent the Amiga emulator. – Charles Pearce, Grantham.

● Unfortunately the situation is not that straightforward. Part of the problem is that many games are licensed from the arcade giants or from such companies as Lucas Films. Based in the USA they look at the world conversion rights.

This can mean that they ask an enormous fee for the rights to one version which only usually covers the name, or they can decide that they might want to convert it themselves sometime. You have to sell an awful lot of games to offset such an initial outlay.

Cygnus Software Engineering and Krisalis have both converted Amiga version of games to the Archimedes and long may they do so. But they only convert the really good games and there is a lot of dross released too – good graphics does not make up for poor gameplay.

But don't forget that many truly innovative games started on Acorn machines: Elite, Zarch (which became Virus), Conqueror and, more recently, Top Banana.

ALL programs printed in this magazine are exact reproductions of listings taken from running programs which have been thoroughly tested.

However, on the rare occasions when mistakes occur corrections are published as a matter of urgency.

Should you encounter error messages when you type in a program, they will almost certainly be the result of your own typing mistakes.

Unfortunately we cannot answer personal programming queries concerning these mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in the letters pages.

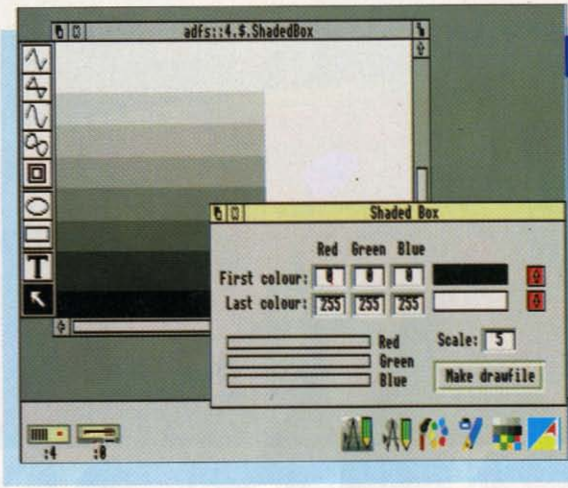
New Concept in Usefulness

Ian Waugh makes his way through a range of value for money utilities

SOMEONE once said that utilities are functions you wish the manufacturer had built into the software in the first place. They fix bugs, add extra features and generally make your computing life a little bit easier.

Design Concept has hit upon the idea of producing a batch of utilities which – so the company hopes – many people may have wished for but which are seemingly so specialised or trivial that they hardly seemed worth anyone's while creating. What's more, they are offered at little more than the cost of the disc.

The range is increasing all the time and updates for some of the programs appeared during the course of the review.



First colour: 0 0 0
Last colour: 255 255 255
Scale: 5

Shaded Box

A fully multi-tasking application designed to create a Drawfile containing a rectangle with a colour bleed from one end to the other. And it does, too!

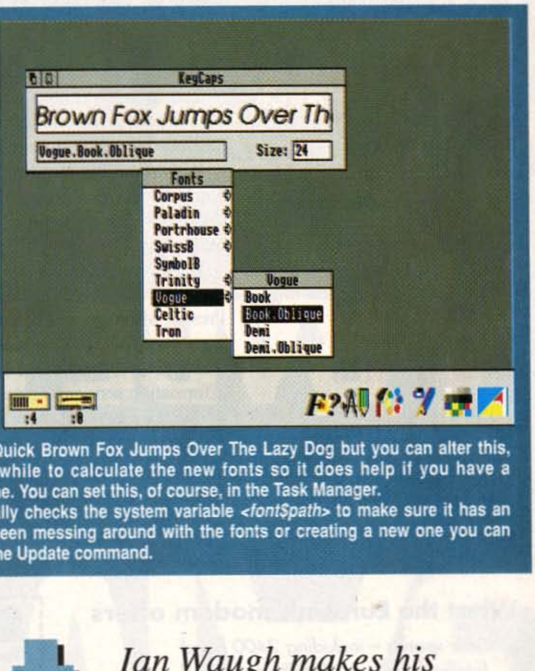
You can define both colours by specifying their RGB content on a scale of 0 to 255. You can also scale the rectangle but this can be done from within Draw. Once it's in Draw you can perform any of the usual Draw functions on it.

It works, it's straightforward to use but I can't think of any application for it offhand. It would, however, make a good background. Perhaps my imagination needs a boost.

Product: Shade
Price:£1.50
Product: KeyCaps
Price: £1.50
Product: Fontlist
Price: £1.50
Product: FreeHand
Price: £2.00
Product: Back 2
Price: £2.00
Product: Muncher
Price: £2.00.

Supplier: Design Concept, 30
South Oswald Road, Edinburgh
EH9 2HG.
Tel: 031-668 4518.
Requirements: Risc OS machine

KeyCaps



Brown Fox Jumps Over Th
Vogue.Book.Oblique
Size: 24

Useful and, again, it's a multi-tasking Risc OS application. It can display a sample of anti-aliased fonts in a window on-screen before you include them in a document.

It defaults to Trinity Medium 24 point text but left clicking on the name box or clicking menu anywhere in the window produces a menu of all the installed fonts. Sub-menus show the available styles and you can alter the point size. The text defaults to The Quick Brown Fox Jumps Over The Lazy Dog but you can alter this, too. It can take a short while to calculate the new fonts so it does help if you have a reasonably-size Font Cache. You can set this, of course, in the Task Manager.

The program occasionally checks the system variable *<font$path>* to make sure it has an up-to-date list. If you've been messing around with the fonts or creating a new one you can request an update using the Update command.

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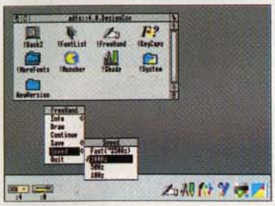
FreeHand


!Back2
!FontList
!FreeHand
!KeyCaps
!MoreFonts
!Muncher
!Shade
!System
NewVersion
FreeHand
Info
Draw
Continue
Save
Speed
Quit
Speed

The instructions describe FreeHand as a sort of patch for Draw's inability to let you construct freehand drawings. Clicking menu on the icon on the menu bar produces a menu whose main commands are Draw, Continue, Save, View and Speed.

In Draw mode you're presented with an inverted screen which you can draw on with the mouse, white on black. The Select button draws and the Adjust button wipes out the drawing by back-tracing from the most recently-drawn point.

Clicking Menu takes you back to the desktop but holds the drawing in memory. Continue lets you carry on from where you left off. View lets you view the drawing in normal Draw fashion, black on white.

The Speed option selects the rate at which the mouse movements are recorded. It's rather like setting the sampling rate on a sampler. The higher speed is more accurate but uses more memory. Unless you're whizzing around the screen like a maniac it seems to make little difference to the resolution.

If you are constructing a complex drawing you may well fill the allotted memory but you can increase this in the Task Manager. The draw screen shows how much memory you have used.

You can load a saved Drawfile back into the program for further editing but don't try to load a normal Drawfile or the computer will lock up.

Fontlist

Another useful program for font-conscious users. It lists all the available fonts in a Drawfile from where it can be printed. You can specify the message to accompany the fonts.

It defaults to "This is" followed by the name of the font. You can also specify the point size. This defaults to 24 point too.

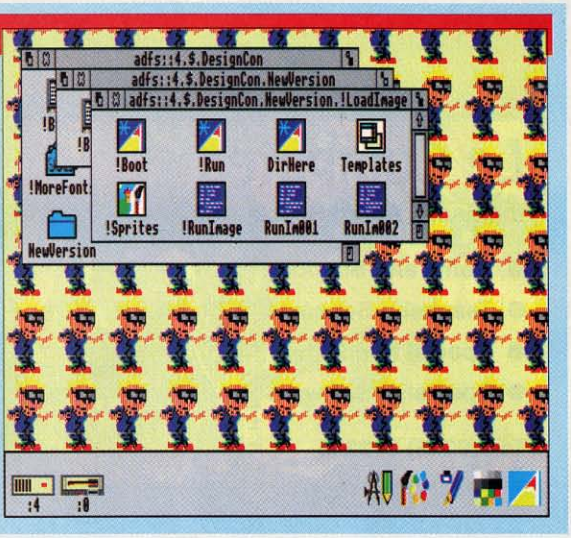
It's quite likely that the collection of fonts will be larger than a page. The instructions explain how to print them all. Nice.

back 2

The most useful but also the most complex of the programs. But where most of the other programs' Help files include instructions on how to use them, Back's Helpfile merely lists recent updates. Ah well.

It can be used to execute any command, including applications and can also plot a sprite across the background. This is neat if you're tired of Archie's plain grey background. Unless they are well-designed, however, I reckon most sprites will be even more tiring on the eye.

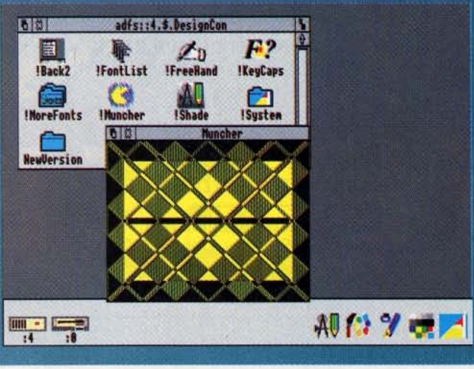
Double-clicking Menu calls up a Background menu offering Info, Sprites, Clear and Quit commands. However, double clicking on some of these options caused the computer to lock up. Tut, tut!

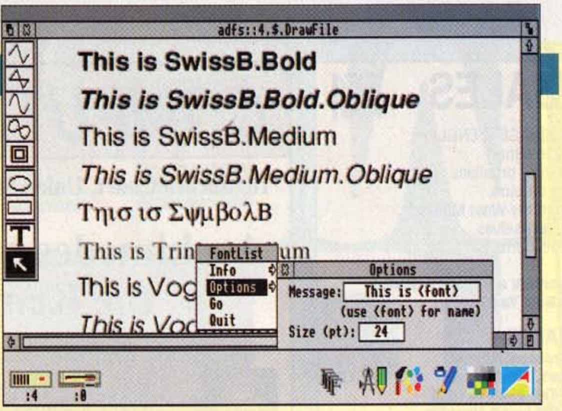

adfs::4.$.DesignCon
adfs::4.$.DesignCon.NewVersion
adfs::4.$.DesignCon.NewVersion.!LoadImage
!MoreFont
NewVersion
!Boot
!Run
DirHere
Templates
!Sprites
!RunImage
RunIm001
RunIm002
:4
:0

Muncher

Muncher opens a window which produces a constantly changing pattern – by the process of XORing moving lines with the background. It's interesting. If you move the pointer on to the pattern the Muncher window comes to the front. Moving it off reinstates the previous window positions. Closing the window with Shift held down will make the directory from which it came appear.

One suggested use is to prevent screen burn. But the window cannot be sized so its usefulness in that respect is limited. What is really needed is an automatic screen display to flip in after a predetermined time without any keyboard or mouse activity – say five minutes. Add a range of selectable screens – fish tanks, comets, stars and so on – and you'll have a very marketable program. See my review of Twilight on Page 113.


adfs::4.$.DesignCon
!Back2
!FontList
!FreeHand
!KeyCaps
!MoreFonts
!Muncher
!Shade
!System
NewVersion
Muncher
:4
:0


adfs::4.$.DrawFile
FontList
Info
Options
Go
Quit
Options

This is SwissB.Bold

This is SwissB.Bold.Oblique

This is SwissB.Medium

This is SwissB.Medium.Oblique

Τηισ ισ ΣψμβολΒ

This is Trin

This is Vog

This is Vog

Message: This is <font>

(use <font> for name)

Size (pt): 24

Summing up

Design Concept have produced a range of utilities which many people will find useful at prices which can only be described as a bargain. However, it is rather a shame that some bugs remain, particularly ones which cause the computer to lock up. I would have thought such 'single-purpose' programs could easily be bug free.

Further development of some of the programs – such as Muncher – could result in some genuinely and universally useful utilities which, dare I suggest, could be sold at several times the asking price of these utilities.

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So that's where it got to...

Eric Ellis shows how to keep track of your ADFS files

KEEPING track of files is tricky at the best of times – but when you have a full ADFS disc what you need is an index – and that's what we have here.

When it's run the program searches the first part of each file on the disc for a special *REM^* statement and then reads the rest of the line to the next Return.

Wordwise text files should start the REM line with an f1 green embedded command but Wordwise or Basic programs should just use a normal REM.

The program should be run from segment 9 while segments 0 and 8 are used for workspace. Segment 8 is left clear at the end while segment 0 contains the compiled index. These segments can be changed if you already use them for other purposes.

It is important that the file attributes are set properly as these are used to differentiate between directories and files. If the first letter of the attribute is *D*, as in *DLR*, it's a directory, but if it starts with *W* or *L* as in *WR* or *LWR* it's a file.

After each catalogue has been saved to disc it is loaded into segment 0 and an entry called *DUMMY_FILE* is put at the end as a terminator. It is then tidied up by removing the empty space at the bottom.

This procedure gives a much better appearance on screen when the program is working and allows you to see what is happening.

The tidied catalogue is then "typed" between two markers which have been placed earlier in Segment 8 and files are moved above the upper marker while directories are placed below the lower one.

As each directory is catalogued and read, the files in it are added to the file list in the upper part while subdirectories are added at the top of the directory list.

Their actual position is determined by the value of *D%* so as to maintain alphabetical order.

Full pathnames are used so that the files can be interrogated from the root directory. The GLT$ instruction could not be used to read the files as it is possible for the pathnames to exceed one screen line if several levels of directories and long names are used.

Instead I have used a cumulative method of reading one character at a time and adding them together until a space is read.

The method of reading the descriptive text from the disc has been slightly modified, but the printout format has been preserved so as to maintain compatibility of indexes with the original program.

It is important to the runtime that as many programs as possible contain the descriptive REM line in the first one or two lines. An almost full ADFS disc with no descriptions took 34 minutes to index while the same disc with the REMs was completed in eight minutes.

Machine code programs and files of raw data are best removed from the file list in the same manner as the !BOOT file because the result of trying to read these is unpredictable.

If the program should crash due to such a file tthe offending filename can be read from the main menu with the command:

```
:PRINT V$
```

When making the list of names to remove from the file list it is not necessary to return the cursor to the top between each one if they are kept in strict alphabetical order. The full pathnames of the files should be used.

● *So there you have all that's needed to keep a complete index of your over-full ADFS discs.*

```
REM * INDEXADFS *
REM By Eric Ellis
REM (c) THE Micro User
REM^Program giving an index of an ADFS disc with the
filename and a brief description.
CLS
V.31,0,3
D.
V.131,141
P." Type Disc Number?"
T.2
V.31,2,6,134
K$=GLK$
V.31,0,9
D.
V.131,141
P." Type Name of Disc?"
T.2
V.31,2,12,134
M$=GLK$
V.31,0,16
D.
V.131,141
P." INSERT DISC YOU WANT TO INDEX"
T.2
P.
D.
V.131,141
P."        THEN PRESS ANY KEY"
T.2
G%=GE.
CLS
*DIR $
D$=""
CLOSE#0
SAVE TEXT"INDEX"
*DELETE "INDEX"
S%=TRUE
S.SEG.8
DE.TEXT
C.T.
TY."@|R]|R"
R.
IF S%=FALSE THEN PROCget_dir_name
IF D$="ENDofLIST" THEN GOTO until
S.SEG.0
```

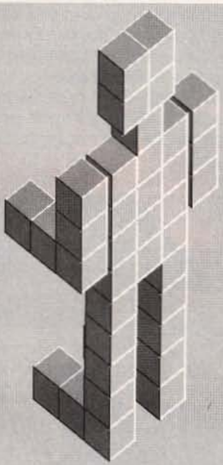
➤

Main procedures

get_dir_name	Gets the next directory name to be catalogued and then deletes it from the list.
get_cat	Shows catalogue of current directory and then saves memory area todisc. Reloads "saved" catalogue as a text file and tidies it up for working on.
get_files	Sorts out files and directories then places them in the appropriate position in the file list using the procedures file, dir and subdir.
file	Lists files with full pathname above the upper marker.
dir	Lists directories within the root directory below the lower marker.
subdir	Lists subdirectories at the top of the directory list maintaining alphabetical order.
readfile	Opens a file and searches for the descriptive Rem line.
print_command	Types printer commands at top of Index file.

➤

```
PROCget_cat
S.SEG.8
PROCget_files
C.B.
IF S%=TRUE THEN TY."ENDofLIST|R"
S%=FALSE
.until
U.D$="ENDofLIST"
C.T.
FI."@"
D.
DE.AT
T.2
C.T.
TY."PATHNAMES|R"
C.T.
REPL."!BOOT",""
C.T.
R.
REPL."|R|R","|R"
U.EOT
S.SEG.0
DE.TE.
PROCprint_commands
S.SEG.8
PROCreadfile
S.SEG.0
SAVE TEXT"INDEX"
DI.
CLS
V.31,4,10,131
P."INDEX COMPLETED PRESS ANY KEY"
G%=GE.
END
.get_dir_name
C.T.
FI."]"
C.D.
D$=""
FKEY3
B$=GCT$
R.
D$=D$+B$
B$=GCT$
U.ASC(B$)=13
FKEY3
FKEY7
E.
.get_cat
CLS
OSCLI "CAT "+D$
*SAVE XXXXXXXXXX FF7CA0 FF7FFF
C.T.
LOAD TEXT"XXXXXXXXXX"
*DELETE XXXXXXXXXX
C.T.
R.
T$=GCT$
C.R.19
U.T$=" "
C.L.20
TY."DUMMY_FILE ~LR(00) "
TY."|R"
FKEY3
C.B.
FKEY3
FKEY7
C.T.
E.
.get_files
C.T.
FI."]"
DI.
TY.SEG.0
C.T.
R.
```



```
REPL."`","_"
U.EOT
D%=1
R.
C.T.
FI."@"
C.D.
C.R.11
N$=GCT$
C.AT
A$=""
C%=20
R.
B$=GCT$
A$=A$+B$
DE.L.
C%=C%-1
U.B$=" "
C.R.C%
DE.L.C%
DI.
IF N$="D" AND S%=TRUE THEN PROCdir
IF N$="D" AND S%=FALSE THEN PROCsubdir
IF N$="W" OR N$="L" THEN PROCfile
U.N$="-"
DI.
E.
.dir
C.B.
TY.A$
DE.L.
TY."|R"
E.
.file
C.T.
FI."@"
IF S%=TRUE THEN TY.A$
IF S%=FALSE THEN TY.D$+"."+A$
DE.L.
TY."|R"
E.
.subdir
C.T.
FI."]"
C.D.D%
TY.D$+"."+A$
DE.L.
TY."|R"
D%=D%+1
E.
.readfile
C.T.
```

```
R.
CLOSE#0
C.D.
V$=""
FKEY3
B$=GCT$
IF B$="]" THEN GOTO mark
R.
V$=V$+B$
B$=GCT$
U.ASC(B$)=13
.mark
FKEY3
FKEY7
IF LENV$<1 THEN GOTO end
V%=OPENIN V$
E$=""
Q%=1
R.
Q%=Q%+1
E$=GCF$#V%
IF EOF#V% THEN Q%=495
IF E$="^" THEN Q%=500
U.Q%>490
IF Q%=500 THEN L$=GLF$#V%
IF Q%<500 THEN L$=" ** No DATA on this file! ** "
S.SEG.0
C.B.
TY."FILE CALLED: "+V$+"|RCONTENT:     "+L$+"|R|R"
DI.
S.SEG.8
C.T.
.end
U.LENV$<1
DE.TE.
CLOSE#0
E.
.print_commands
TY."|GEP|R"
TY."|GTS3|R"
TY."|GFP20|R"
TY."|GLM9|R"
TY."|GLL67|R"
TY."|GLS1|R"
TY."|GBS2|R"
TY."|GREM THIS FILE IS CALLED INDEX|R"
TY."|GREM^Index Data for a printout|R"
·TY."|GOC27,67|R"
TY."          INDEX for Disc "+K$+" "+M$+"|R|R"
E.
```

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Low cost quality

John Allen reviews an inexpensive spreadsheet for the Archimedes and BBC A3000

Product: Contex Spreadsheet
Price: £15 + VAT
Supplier: Contex Computing, 15 Woodlands Close, Cople, Bedford MK44 3UE.
Tel: 0234 838347

SPREADSHEETS are, along with wordprocessors and databases, one of the most widely used applications on any computer. As far as the Archimedes and BBC A3000 are concerned, spreadsheets are synonymous with Colton Software's PipeDream, Minerva's SigmaSheet or Clare's Schema, so it's interesting to try out an alternative.

Straight away the big difference with the Contex Spreadsheet is its price. At £15 it costs only a fraction of the others, which must surely commend the product given the generally high cost of Archimedes software.

It is a development of their spreadsheet for the 8-bit BBC micro and comes on a single disc with the manual on file. A good idea having the manual in this form – it saves expensive printing costs and should mean that it's bang up to date. Unfortunately, there was still the inevitable !Readme file of corrections on my disc.

The spreadsheet is run in normal Risc OS fashion by double clicking on the !SpreadS icon. A BBC micro style Mode 7 menu screen is displayed from which you select the S option and it's the program proper. The spreadsheet runs from and returns to the Desktop but is not multitasking. Some users will find this a preferable environment, others will be concerned that it does not operate in the machine's conventional way.

To illustrate the operation of this software I reconstructed the spreadsheet in the review of Schema – *The Micro User* January 1991 – used to keep track of car fuel consumption. In this, each row of the sheet represents a purchase of petrol, assuming that the car is filled each time, and the columns contain the price, miles per gallon, etc.

Limitations

First, the size of the sheet in terms of rows and columns has to be defined, and up to 26 columns and 900 rows are available. A model of maximum size should fit on a 1Mb machine. I found that having to specify the size of a sheet at this stage was very restricting.

The manual suggests constructing a sheet larger than required and limiting the display to just show a portion, giving the possibility of later expansion. Unfortunately, saving such a sheet only keeps the limited portion, so there's no possibility of expansion when the file is reloaded. Having to remember to "unlimit" the sheet each time before saving is a risky business.

For our example sheet it is necessary to overspecify the number of rows in the Context Spreadsheet to allow for continuing purchases, whereas in PipeDream or Schema rows can be added as they are needed.

Having labelled the columns, the sheet is ready to use. Commands within the sheet are all single letters, D is the command to enter data into cells. The cursor keys move around the sheet to select individual cells.

Formulas are indicated by pressing the Tab key followed by F before they can be entered. They can be easily replicated – or to use the manual's unique term "spawned" – using = to copy the formula along a row or ^ down a column. Using = # = spawns the formula for the rest of the row and ^^ for the rest of the column.

The miles entry in cell b2 is calculated by the formula a2-a1, this is spawned, by using "^" to fill slots b3 to b7. Cell e2 contains the formula to calculate miles per gallon:

```
miles x cost per litre
------------------------ = (b2*d2)/(c2*22)
cost x conversion factor
```

The conversion factor is the number of gallons in a litre (.22) multiplied by the number of pennies in a pound (100). The formula for cumulative miles per gallon is:

```
FNAVG("'e2..e2")
```

Both of these formulas are spawned down to row 7. There is a reasonable range of functions – such as FNAVG above – available as well as the standard arithmetic operators.

Recalculation and printing

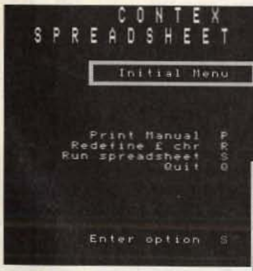
Unlike most spreadsheets, the Contex does not automatically recalculate the values of formulas when any of the data is changed. To calculate values, the E (for evaluate) command is used.

Evaluation takes place column by column so if there are any forward references – slots which refer to the result of a formula in a later column – the sheet will have to be recalculated a number of times before the values can be assumed to be correct.

This lack of automatic recalculation, means that when data or formulas are being edited many formula results are displayed as *.

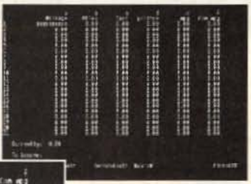
Printing a sheet is very straightforward and flexible, parts of the sheet with or without labels can be sent to a printer or spooled to a file using the P command.

This flexibility does mean that quite a few questions have to be answered before printing can start, but pressing Return gives sensible defaults. The process can be automated by using an Exec file.

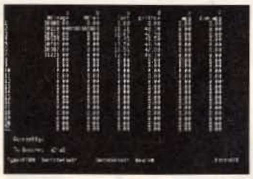


```
        C O N T E X
S P R E A D S H E E T   M k  V

      Initial Menu

     Print Manual     P
   Redefine £ chr     R
  Run spreadsheet     S
             Quit     Q

     Enter option  S
```

Menu screen



The blank sheet



Entering formulas

Setting up a sheet

Summing up

The authors do not claim that serious users will find the Contex Spreadsheet competition for PipeDream or Schema, but that it performs the basic functions of a spreadsheet in an easy to use way. This is patently true, and with such a low price tag has to be recommended.

Although the size of a sheet is restricted compared to its more expensive competitors, 26 columns and 900 rows is enough for the majority of users.

On the minus side, having to fix the size of a sheet when it is first defined is a big restriction, and I would have preferred it to have made use of the Risc OS window and menu system.

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Atomwide 10
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Badger Micros......................152
Beebug 12, 14, 16, 30, 36
Bell Computing 86
Black Knight.........................160
Bright Ideas...........................93
Calligraph............................144
Cardigan Electronics............153
CC Computer Services........152
Clares 44
Collage Computers..........40, 41
Colton Software 28
Computer Concepts.........70, 94
Computer Eyes 152
Computer Tutorial................153
Contex Computing.................98
Craddock Comp Systems......61
CSS Computer Centre.........152
Dabhand 6, 7
Daco 153
Datastore 144
Desk Top Projects 39
Diamond PD 160
Dragon Soft............................57
EMR.....................................159
Europress Software 115
Fact Systems 162
Ground Control Electronics....82
HCCS.....................................34
Hourglass Software 160
HS Systems.........................159
Human Computer Interface ...42
Hybrid Technology................IBC
Ian Copestake Software .8-9, 26
Integrex..................................89
Ifel..143
JR Lectronics.......................153
Kingsway 77
Krislais 53
Le Computer........................152
Lee Micro Comp Repairs.....154
Manor Court...........................98
Mansfield 122
Mauden................................152
MD Office...............................48
Micro Aid..............................160
Micromainia 156, 159
Minerva..................................49
Morley Electronics 2-3, 58
Norwich................................156
Orian Computers ..20-21, 62, 99
Pineapple.............................146
Pres 47, 156
Rickett..................................156
Rombo 90
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Selective Software...............159
Selective Comp. Serv ..154, 160
Senlac Computing 143
Serial Port..............................85
Sherston Software 88
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Storm Software......................92
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The Data Stream 160
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Warehouse 65
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What language barrier?

Terry Blunt looks at a professional assembler for the Archimedes

Product: Cross 32 Assembler
Price: £175
Manufacturer: Baildon Electronics
Retailer: Morley Electronics, Morley House, West Chirton, North Shields, Tyne & Wear NE29 7TY.
Tel: 091-257 6355
Requirements: Archimedes 310

ONE possible indication of the level of commercial acceptance of a computer is the utility software written for it that will ultimately result in software for other machines.

Cross assemblers come in this category, and the one now available from Baildon Electronics is a full feature assembler that can compile code for over 30 different processors. The Cross 32 Assembler requires only the minimum hardware of an A310.

It runs from a DeskTop icon, but doesn't multi-task. Along with the application itself, the disc carries a number of example files of source code for various processors.

In common with most compilers and assemblers, Cross 32 assembles code from plain text files in binary or hexadeximal format, along with an optional listing file. The assembler can also be run from the command line or within obey files.

A 66 page A5 booklet gives detailed instructions but assumes that the user has a clear grasp of using assemblers in general and knows the processor for which code is to be assembled. In fact, you need to know the actual computer your code is being assembled for, unless you are assembling a very general purpose program.

Although Cross 32 runs very fast it is a pity that a full interactive system wasn't devised. I would particularly like a feature where, on finding errors, the assembler halted and loaded the source file into !Edit, with the cursor at the offending line. Many professional assemblers and compilers do this.

This is a table-based assembler with different tables for different processors. You set the target processor early in the source code with a simple CPU directive and the assembler will use the relevant table to translate its internal language into the appropriate instruction codes.

Not only is there a library of different processor families, but also facilities for tailoring it to suit almost any target processor, whether it be 8, 16 or 32 bit.

Instructions for making these modifictions included in the user guide should allow the assembler to grow as new processors come along.

It will handle both conditional assembly and macros with ease. A full IF-THEN-ELSE structure is supported, but macros can't be nested. Having said that, I've never yet had the need for that facility.

Fairly conventional labels are used, with normal integer operations being possible. Most of the arithmetic follows the ANSI C standard.

As well as mnemonics for individual processors, Cross 32 has a number of its own definitions. These are used for declaring memory areas, aligning code and for setting bytes, words and strings. Code can be assembled to any address – set with a program counter directive. This is, of course, most important for processors that don't support position independent code.

I was a little disappointed that the assembler doesn't appear to have the facility to write load and execution addresses to the object code, but produces a plain data file.

Although the BBC format is not directly compatible with other filing systems, these figures can be turned into meaningful information by file transfer utilities.

There is an include directive which allows multi-file assembly – very useful if you want to have libraries of standard routines that you can draw into the code as needed. This will nest up to a depth of 16.

All filepath handling is to the Acorn standard, but there are extensions to give a degree of compatibility with PC and Unix conventions.

For my initial examination I used Cross 32 to assemble a trivial string printing routine for the 6502 family. This I was able to quickly prove by running Acorn's BBC B emulator.

The only problems I came up against were the strangeness of writing 6502 code after having used ARM code for so long, and the slightly different syntax of Cross 32 compared with BBC Basic.

Cross 32 will assemble ARM code, but I think you'd find it easier working with the assembler built into Basic V.

Summing up

At £175, Cross 32 is not cheap, but is a good, no-nonsense tool for serious work across a wide range of processors. Utilities like this should help to expand the Archimedes professional user base.

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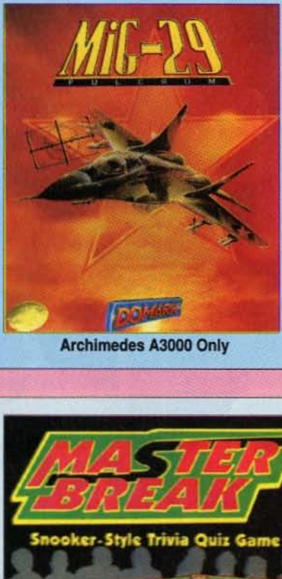

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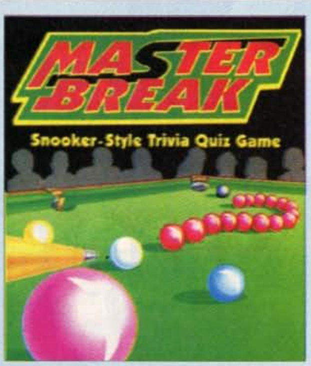

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MU12

FUN SCHOOL!

TAPE 5.25"DISC
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Ages 2-5	Ages 5-8	Ages 8-12
Alphabet	Balance	Anagram
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- **Use your BBC Micro to teach and amuse your children at the same time.**
- **Three packages crammed full of educational programs – and so easy to use!**
- **Each program has been educationally approved after extensive testing in the classroom**

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This delightful collection of programs is based around children's favourite Nursery Rhymes. There's plenty of sparkling colour, sound and captivating animation to keep them riveted – and as they play they'll be learning all the way.

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THE PERFECT PAIR

The best-selling, award-winning BBC software is now joined by THE definitive guide

A Dabhand Guide
Mini Office II
DABS PRESS

The Program

Mini Office II is the highly-acclaimed suite of integrated programs which turn your computer into a versatile business machine.

It's the perfect package to increase your personal productivity – with more than 400,000 satisfied users across the complete Mini Office range.

The Book

The Dabhand Guide to Mini Office II is a brand new book to help you get the most out of the software. It not only contains the facts, but also the kinds of hints and tips that can only be built up through years of computer use.

More than a manual, the guide assumes nothing. Beginning with the first sentences typed into the editor, you are led through al aspects of using the system, up to the most advanced techniques.

All the examples are also on an accompanying disc which even includes a very useful routine to print out large spreadsheets sideways.

CLASSIC GAMES COMPENDIUM

We've brought together some of the most popular compilations ever to have appeared in *The Micro User* for this special offer. For a limited period, we are offering them on four 5.25" discs for the give-away price of £14.95!

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- ★ 9 Classic Card and Board Games Volume 2
- ★ Ten of the Best Games
- ★ Classic Arcade Games

9 Classic card & board games
9 Classic card & board games
THE MICRO USER
SPECIAL
CLASSIC ARCADE GAMES

NEW!
TEN of the BEST!
EDUCATIONAL GAMES

Packed full of some of the best educational games available for the BBC Micro, the new Ten of the Best Educational Games is the ideal way for your children to learn about maths, spelling, anagrams, telling the time, general knowledge, and even the rudiments of running a business!

Specially compiled by the *Electron* and *Micro User*, teams to give a good grounding in all aspects of learning, and at the very special price of only £5.95 on tape, or £6.95 on disc, this collection is a treat you and your children cannot afford to miss!

Give your children hours of fun, and help them to learn the easy way by ordering your copy today

Tape £5.95
Disc £6.95

Special Offer

SAVE £40

ACORNSOFT LANGUAGES
FORTH

Acornsoft Forth Rom

~~£49.95~~

£9.95

Reduced to clear while stocks last

PLEASE USE THE ORDER FORM ON PAGE 170

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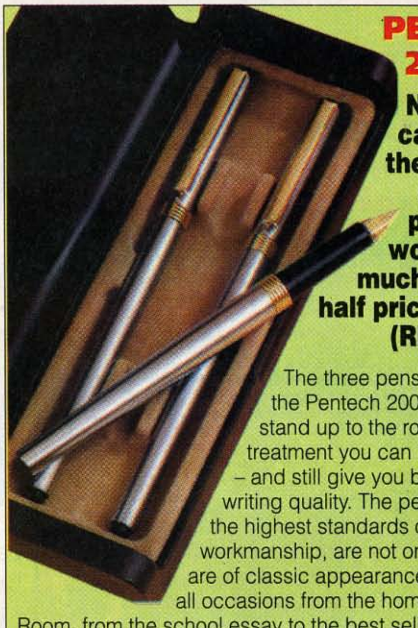
The up to the minute amplifier implements the latest microchip technology to produce an earshattering output. Twin volume controls enable you to adjust the output and balance to suit.
The quality 50 watt speakers consist of a woofer for thumping bass output, a mid-range unit for crisp music and effects and a tiny tweeter which pumps out the highest frequencies the ear can hear.

The package comes complete with mains adaptor and full instructions. No soldering is required – simply plug in, boot up your favourite software and turn up the volume.

The essential peripheral for all games players and musicians

ONLY £47.95



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Now you can own the toughest set of pens in the world - for much less than half price! (RRP £39.95)

The three pens that make up the Pentech 2000 pen set can stand up to the roughest treatment you can inflict on them – and still give you best possible writing quality. The pens, made to the highest standards of workmanship, are not only robust but are of classic appearance suitable for all occasions from the home to the Board Room, from the school essay to the best selling novel.

Available in Matt Black or Silver for £14.95 per set, two sets one in each colour only £20.00

FontStyle

Fontstyle is a versatile system for creating professional looking printouts. It comes with two ready-made fonts and a designer so you can create your own.

Plus you can now get a set of four discs containing an extra 64 fonts!

Fontstyle is so easy to use. You just type in your text using your favourite word processor – enter the easy-to-remember formatting codes and save it. Then just load in the FontStyle program and you'll have superb results within minutes.

Some of FontStyle's features

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- *64 fonts available*
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- *Temporary or hanging indents*
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- *Flexible and easy-to-use font designer*
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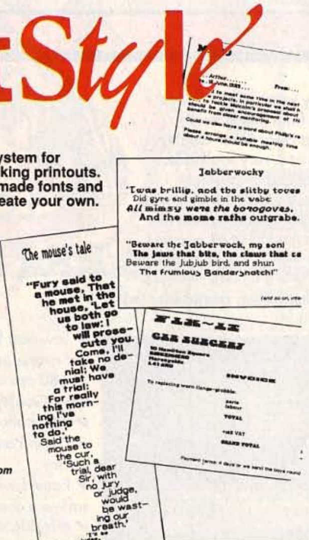

Jabberwocky

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe:
All mimsy were the borogoves,
And the mome raths outgrabe.

"Beware the Jabberwock, my son!
The jaws that bite, the claws that ca
Beware the Jubjub bird, and shun
The frumious Bandersnatch!"

The mouse's tale

"Fury said to a mouse, That he met in the house, 'Let us both go to law: I will prosecute you. Come, I'll take no denial: We must have a trial: For really this morning I've nothing to do.' Said the mouse to the cur, 'Such a trial, dear Sir, with no jury or judge, would be wasting our breath.'

INVOICE

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+VAT

GRAND TOTAL

FontStyle	
5.25in disc	£9.95
3.5in disc (BBC ADFS)	£10.95
Archimedes (Using emulator)	£11.95

Set of 64 Fonts (4 discs)	
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DATABASE PUBLICATIONS

DTP

This is an easy-to-use and flexible page design system for producing high-quality printouts through your Epson compatible printer. It comes with four of its own fonts to get you started plus a Font Designer to keep you going.

Some of the features of Database Publications DTP

- Independent control of bold, italic, 'thin' and underline characteristics of the system font
- Proportional spacing of both external and system fonts
- Stretching and compressing of any area
- Pixel editing via zoom facility
- Up to A5 page design
- No special disc format
- Four fonts provided
- Font Designer supplied
- Built-in Graphic designer
- Import text or type direct
- Can import cut-outs
- Built-in Mode converter

Database Publications' DTP

5.25in DFS 40/80 track disc (only) £14.95

Due to the complexity of the program the fill routines will not function correctly with the B+, Master or Compact – all other features are compatible

PLEASE USE THE ORDER FORM ON PAGE 170

THE MICRO USER Reader offers

TO ORDER, PLEASE USE THE FORM ON PAGE 170

Passing an exam . . . applying for a job . . . whatever you want to do in life you need to be able to SPELL!

There's mounting alarm about the appalling standards of spelling among Britain's schoolchildren. MPs, teachers, parents and employers are all stressing the vital importance of being able to spell correctly.

Yet most homes have what could be the ideal means of teaching spelling – the computer.

Instead of zapping aliens it could be turned into the best weapon of all to deal a body blow to bad spelling. With the help of a brilliant new software package that not only makes practising spelling painless but also loads of fun as well.

SPELL! is unique. It lets the user learn at his or her own pace. They can take as long as they like – or take on the computer in a high-speed challenge!

And this one package is ideal for everyone – with the lowest age group suitable for under-5s, while the more advanced words will stretch even the most able students.

It includes five different tests, each making use of more than 5,000 words – so much variety that you'll never get bored.

SPELL!

- **5 DIFFERENT TESTS**
- **OVER 5,000 WORDS**
- **FOR AGES 5 TO 15**

SPELL! only costs £8.95. It is now available on disc and tape for six of the most popular home computers.

HEAD COACH

The Ultimate Simulation of American Football

Enjoy the thrills and spills of the NFL – without a bruise!

Head Coach from Coda Software, puts you, as the coach, in charge of a NFL team, with drafts, player profiles, league tables and of course the games themselves.

The instructions contain a playbook, packed with hints and tips to take your team all the way to the Superbowl.

Head Coach is available in both 5.25" 40t/80t and 3.5" ADFS formats and costs only **£19.95**

Can you tackle the toughest job in football?

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For your personal stereo, radio or TV

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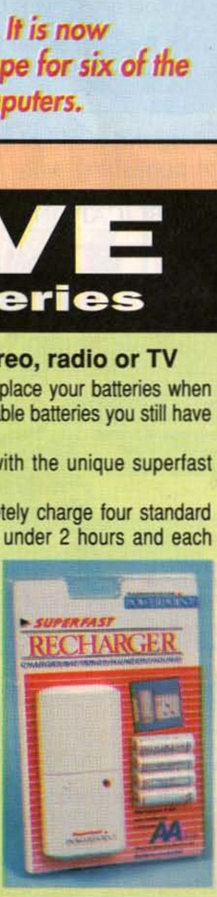
We have solved the problem with the unique superfast powerful battery and charger kit.

This amazing device will completely charge four standard AA size rechargeable batteries in under 2 hours and each battery can be recharged at least 1,000 times.

Further, for a limited period we can sell the charger and four rechargeable batteries at the staggeringly low cost of

£19.95 (plus £1.50 p&p)

It will pay for itself within weeks!



STAR LC-20 PRINTER

The very latest in 10" budget printers from Star offering excellent Near Letter Quality printing at a very low price. Compact and surprisingly versatile, the LC-20 will take the longest documents in its stride. Ideally suited to small business users as well as the enthusiast, the LC-20 is a natural successor to the best selling, award-winning LC-10.

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inc. 1 years warranty + VAT

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Also available:

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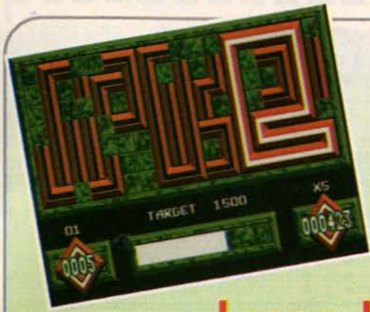


Loopz

Tape £8.95
40/80t £11.95
3.5" Arch £19.95

NEW

01
TARGET 1500
X5
0005
000418

Loopz, Loopz and yet more Loopz

You can go Loopz crazy with the addictive new puzzle and strategy game from Audiogenic. Make as many different and complex loops as you can and you'll be rewarded with bonus screens and an ever increasing challenge.

There are three games available in Loopz. In games A and B you must try to make as many loopz as possible and should you clear the screen totally by completing all your loopz then you'll have the challenge of the Bonus screen. In game B your loopz in the bonus screen don't disappear and you must be especially clever to amass maximum bonus screens.

Game C challenges both your memory and your puzzle skill and all three games entice you to play just one more time.

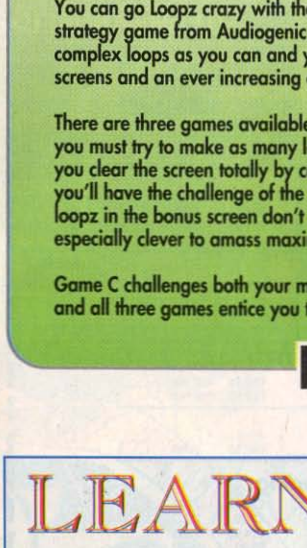
The larger the loopz the larger the points you'll gain. But you are also judged on the number of loopz you create and the best and most complex loopz. All are preserved for posterity on the high score table.

What the reviewers said:
This is an amazingly addictive game ... You can get to screaming pitch as you are unable to place a piece or have mistimed a drop. The Micro User, November 1991

And what's the really good thing about this game? It's available for ALL Acorn owners, Electron, BBC B, Master, BBC A3000, A5000 and Archimedes range. And better yet, you can buy this game directly from The Micro User for a limited period only and save pounds.

To order, turn to the Order Form on page 170

LEARNING CAN BE FUN!



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2
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With 3 age groups (under 6's, 6-8 years old and over 8's) ***Fun School 2*** is the ideal way to introduce youngsters to the joys of using a computer.

FOR A LIMITED PERIOD ONLY we are able to offer ***Fun School 2*** at substantially reduced prices

fun
school
2
For 6-8 year olds

DATABASE
EDUCATIONAL
SOFTWARE

FOR DETAILS OF PRICES, FORMATS, AND HOW TO ORDER, TURN TO PAGE 170

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NEW

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Perfect Pair

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Database Publications DTP *(see page 103)*

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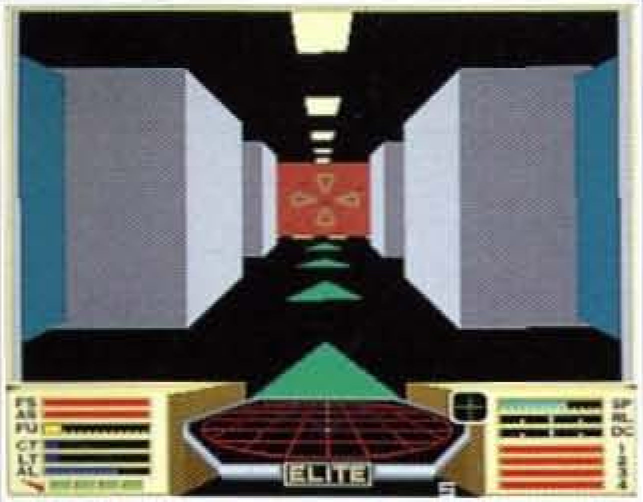
MU12

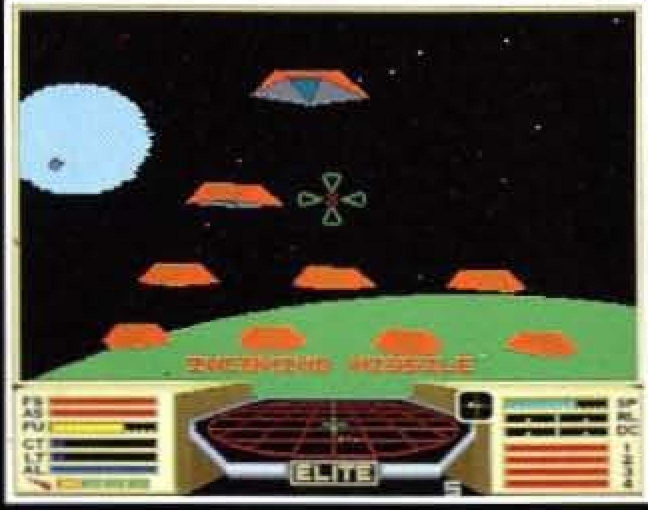
NAME: ELITE

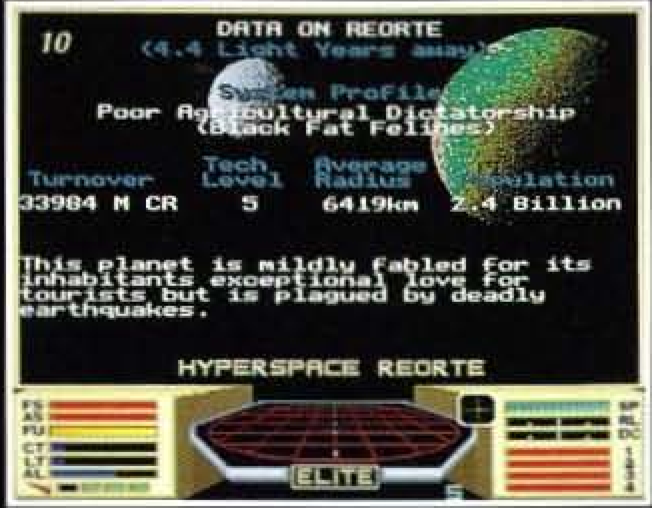
RATING: THE BEST-SELLING HOME COMPUTER GAME OF ALL TIME

STATUS: NOW FOR THE ACORN ARCHIMEDES, A3000 AND A5000

RIGHT ON COMMANDER!







10

DATA ON REORTE

(4.4 Light Years away)

System Profile

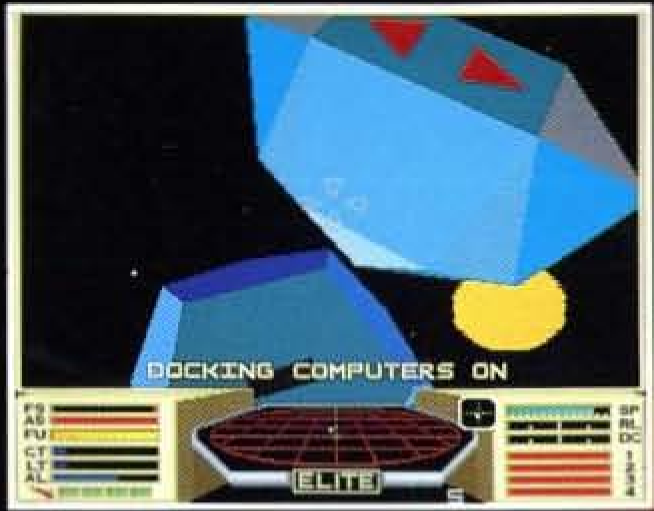
Poor Agricultural Dictatorship

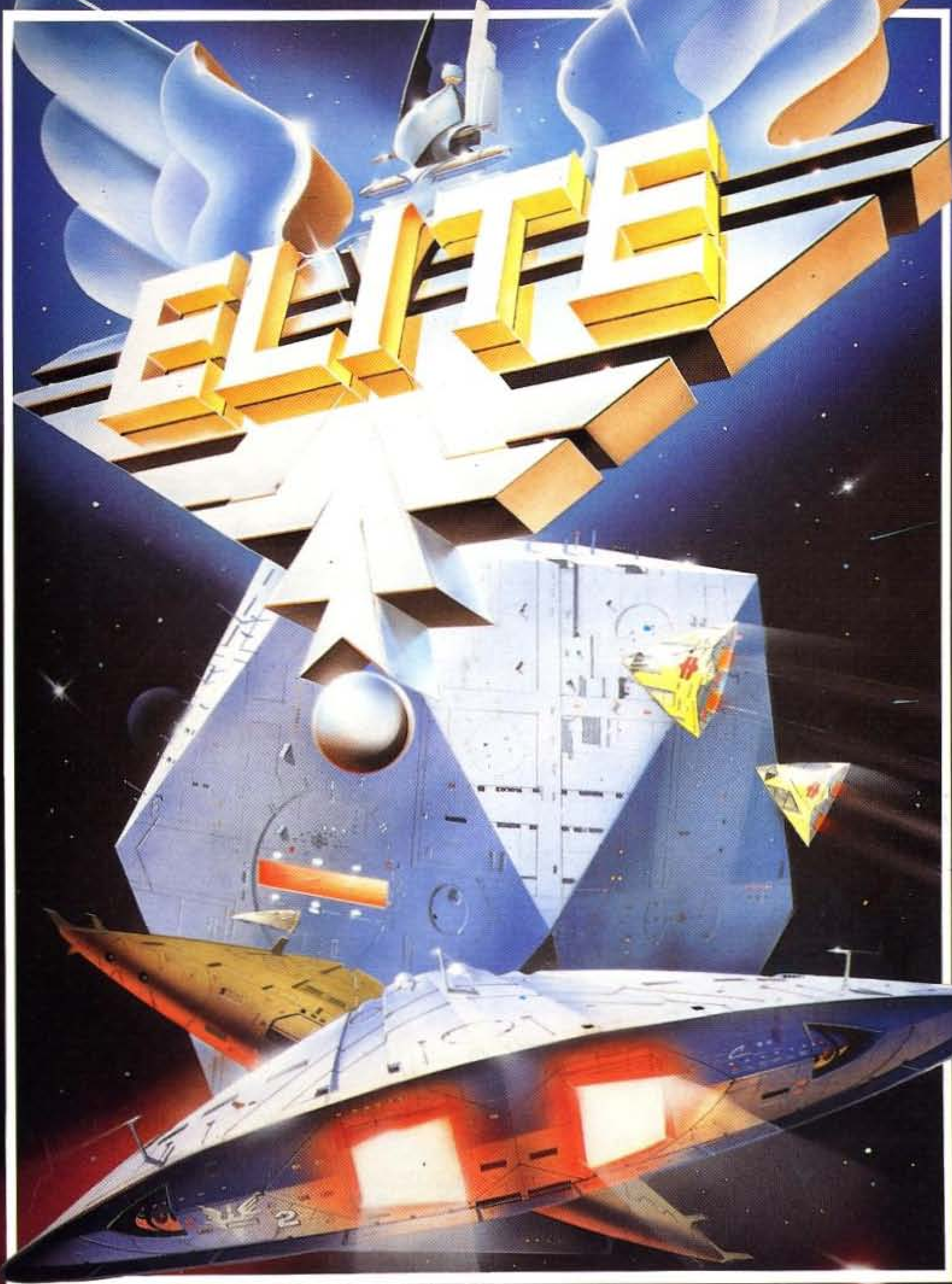
(Black Fat Felines)

Turnover	Tech Level	Average Radius	Population
33984 M CR	5	6419km	2.4 Billion

This planet is mildly fabled for its inhabitants exceptional love for tourists but is plagued by deadly earthquakes.

HYPERSPACE REORTE





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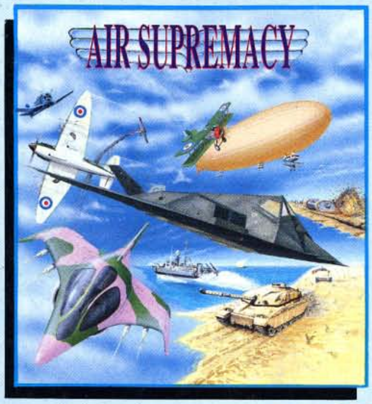

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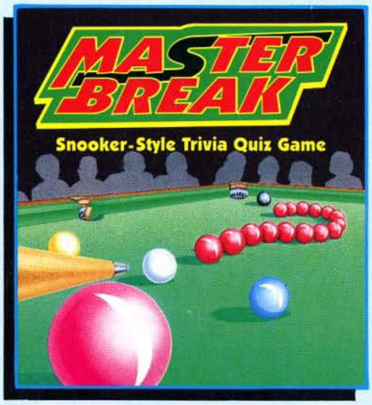

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